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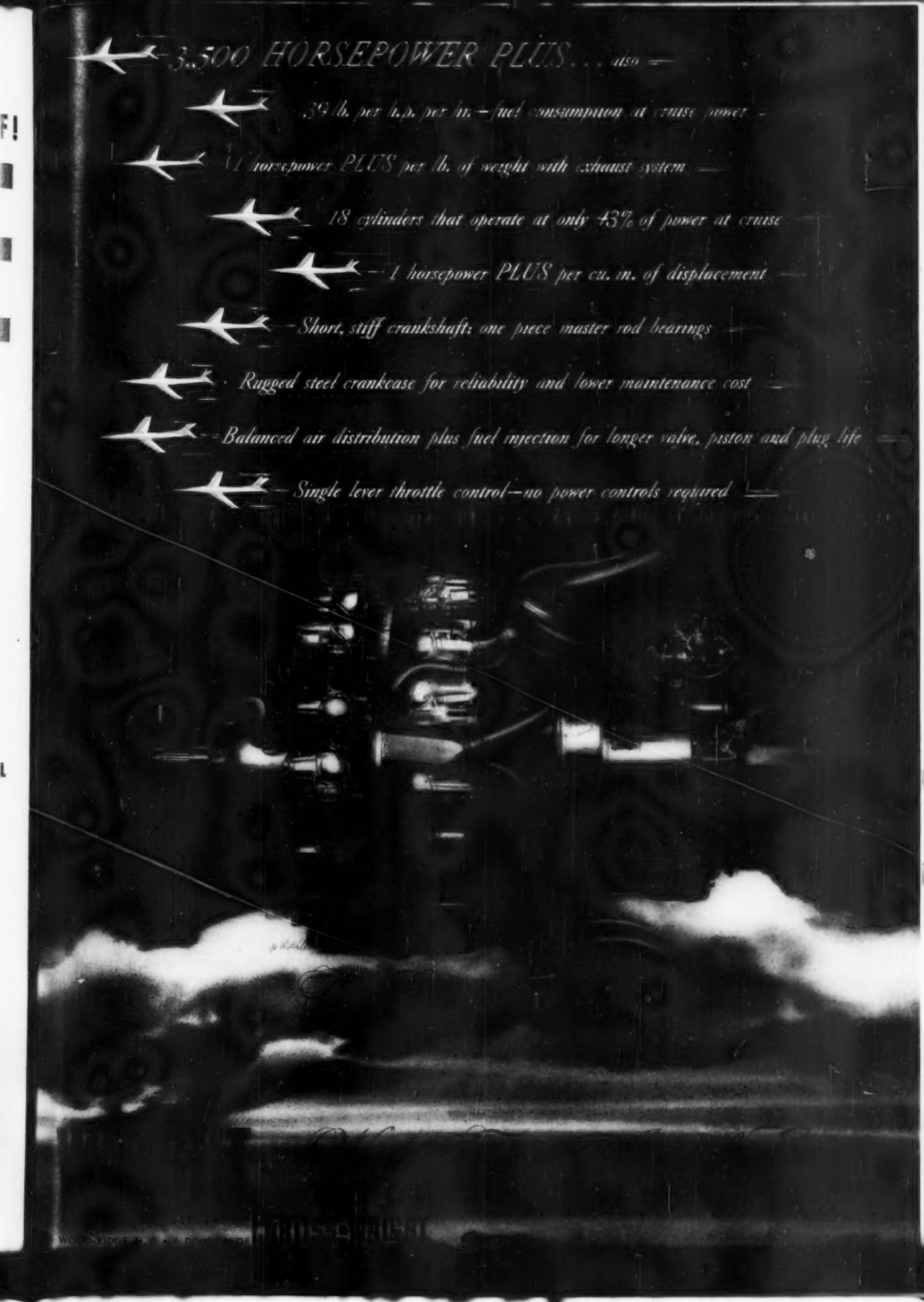

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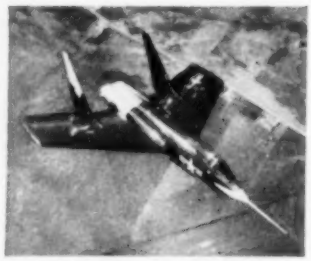

THE COVER: Chance Vought F7U-1 Cutlass is "in 600-m.p.h. class." F7U-3, improved version, is now in production for Navy.

EDITORIAL

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FLYING

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JUNE • 1951

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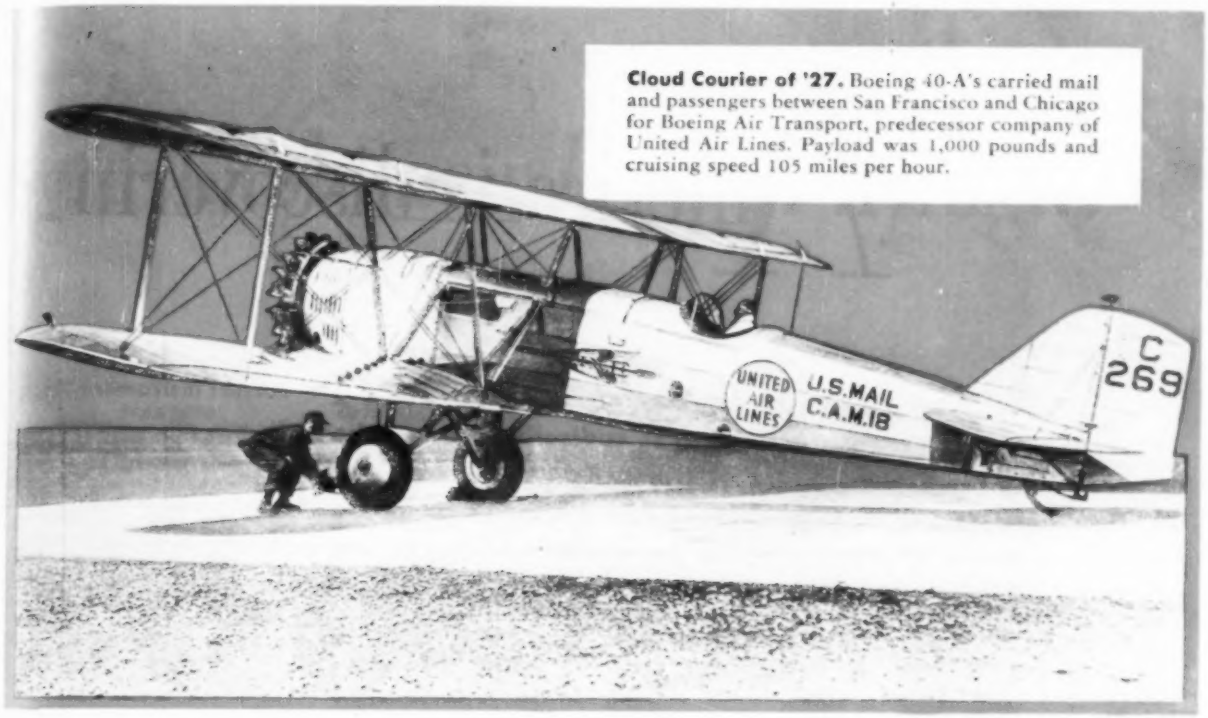

Cloud Courier of '27. Boeing 40-A's carried mail and passengers between San Francisco and Chicago for Boeing Air Transport, predecessor company of United Air Lines. Payload was 1,000 pounds and cruising speed 105 miles per hour.

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United Air Lines Mainliner Stratocruiser carries 55 passengers, a crew of seven, and 7,000 pounds of cargo. United operates the 71-ton, double-decked planes on 12 weekly round-trip schedules between Los Angeles, San Francisco and Hawaii.

We take off our hats to United Air Lines—one of our oldest aviation customers who has made good in a mighty big way. In attaining its silver jubilee, United Air Lines has expanded its system of airways from 460 to 13,250 miles. And right from its early days, United has depended on Phillips 66 Aviation Products.

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AVIATION PRODUCTS

America is discovering a re

Far from being just another gadget, the Lear L-2 autopilot is a device that is radically altering the fundamental nature of flying itself. Here are the impressions of prominent pilots who have tested the L-2. Here are the *facts*—as told by a few of the many owners who now fly with the L-2 autopilot day after day in their own planes . . .

"Greatest Contribution Since Airplane Was Invented"

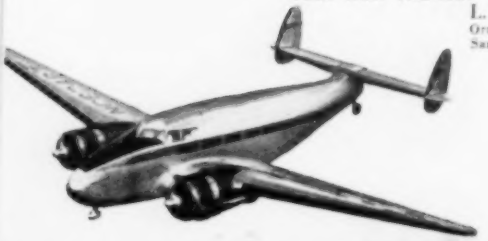
I operate the L-2 under all conditions, and I wish to say that it is man's best friend in marginal weather. It eliminates everything undesirable in rough air flying and maintains perfect course under all conditions. The L-2 autopilot is one of the world's greatest contributions towards flying and navigation for the average private and executive pilot since the invention of the airplane. It definitely increases the safety of flying due to its all-weather performance. It definitely reduces time between two points on cross-country due to a true course under all conditions. It definitely increases the smoothness of the ride in rough air due to perfect attitude at all times, arriving at your destination free from tiredness and mental strain. I would rather quit flying than do without it. (Cessna 195)

CLARENCE E. MORRIS
National City, California

"Airman's Dream Come True"

In rough air the L-2 autopilot's performance is uncanny and is probably its greatest advantage next to its aid in instrument flying. A child can learn to operate it immediately. There are only two knobs to turn—one to bank right or left and another to nose up or down. That is all there is to it. The L-2 autopilot is the airman's dream come true. (Navion)

L. D. ORMSBY
Ormsby Chevrolet Co.
San Antonio, Texas



"Now we can fly 12 hrs. a day"

Before the L-2, when we flew three or four hours on instruments, it was enough, and we would put the airplane away for the day because instrument flying is very tiring when there is no relief pilot. However, now we can fly eight, ten, or twelve hours a day, and the L-2 is our relief pilot. The L-2 actually makes a co-pilot unnecessary, and, in fact, if it weren't for take-off and landing, our airplane wouldn't even need a pilot. If we were offered double the amount of money, or even triple, we would not sell our L-2. In fact, we think so much of it that we are now having an L-2 installed in our Grumman Widgeon. (Bonanza)

CARL H. WAMSER
Everbrite Electric Signs, Inc.
Milwaukee, Wisconsin

"A Safety 'Must'"

No private pilot need ever worry about weather if he has the Lear L-2 autopilot aboard. If he can read his compass, if he has sufficient strength to operate the turning knob, no sudden unexpected instrument condition can ever get him into trouble. The old rule about a 180 degree turn really means something now. In my book your autopilot is a safety "must." It will get you out of danger no matter how suddenly you run into instrument weather. It gives you time to think and to study your maps and check for a radio fix. It takes all the labor and worry out of flying. (Bonanza)

K. F. CLARDY
Lansing, Michigan

"Perfect Instrument Approach"

My wife, who is normally allergic to gadgets in aircraft, put her immediate stamp of approval on the Lear L-2 autopilot after the demonstration of its use in a GCA approach. She was amazed at what a perfect instrument approach could be made in an emergency with the L-2 by a non-instrument pilot. However, what I appreciate most about the L-2 autopilot is the fact that with it the pleasure of flying will still be mine when I would otherwise be quitting because of old age—say in about twenty years from now. But with the Lear autopilot in my plane, I am sure that I will continue to fly as long as I am physically able to drive a car. (Bonanza)

DR. JOHN P. LORDAN, M.D.
Beverly Hills, California

"Takes Out All the Work and Leaves Only the Fun"

The L-2 takes all the work out of flying and leaves only the fun. By holding an exact heading indefinitely it encourages precise dead-reckoning and adds greatly to the pleasure of navigation. It permits in-flight study of maps, airports and radio facility data and frees the human pilot for calculating his flight plans and using his radio. Because it removes the strain from cross-country trips, I would judge that it doubles the efficiency of the owner, his airplane and his other equipment. I consider it the greatest single contribution to private flying in recent years. (Bonanza)

CARLETON PUTNAM
Chairman of the Board
Chicago & Southern Air Lines

"Wonderful Performance"

The L-2 pilot gives a wonderful performance for such a small and simple unit. The freedom it gives the pilot during instrument flights is very important when operating without a co-pilot. We feel that we have made a good investment in safety and convenience. (Twin Beech)

HARRY F. WHITE
Union Cutlery Co., Inc.
Olean, New York

a remarkable *new kind* of flying...

"I No Longer Hesitate to Fly Anywhere . . ."

The Lear L-2 Pilot can hold a course accurately, indefinitely, such as no pilot can do even if he has a co-pilot to do all the navigating for him! It leaves both hands free to twist dials, throw switches, futz with the carburetor heat, work the radio, study the charts, figure out ETA's with the confusers, etc. As long as my ceilings enroute and at the point of destination are such as to give me time to hunt a landing field in case of an emergency, I no longer hesitate to fly anywhere in my Lear equipped Navion through fronts, crud, crap and what-have-you, except ice and thunderstorms, of course. I do most sincerely believe that the Lear L-2 Pilot, the Lear Omni-Range Receiver, and the Lear ADF are the three greatest contributions to private flying since the Navion itself!

ARTHUR GODFREY, CBS

"Eerie Super-Coordination"

The Lear L-2 autopilot is simply out of this world in what it does for a private type airplane. It will not only fly the airplane, but it will give your favorite airplane stability and riding qualities that you've never dreamed of because you've never seen one flown well enough to produce this almost eerie product of super-coordination. It not only gives a more comfortable ride, but it takes the fatigue out of piloting and you arrive as fresh as your passenger. And if, enroute, you really need to deliver your very best judgment on a weather or navigational problem, it gives you an opportunity to think, for it puts into the airplane a priceless quality: a desire to fly straight.

LEIGHTON COLLINS
Editor, AIR FACTS Magazine

"Definitely Superior to the Drive-in Theatre"

The L-2 autopilot is the greatest invention since one-armed driving was introduced. With television added to the omni, it is definitely superior to the drive-in theatre. (Cessna 195)

ELLIOT W. SPRINGS
President, Springs Cotton Mills
Lancaster, South Carolina

"Better Than an Airline Captain"

The L-2 pilot does a better-than-human job of flying in turbulent air. It is in rough air that the full enjoyment of the Lear L-2 Automatic Pilot can be seen. Long trips are now as comfortable as short ones formerly were. And how that L-2 pilot smooths out the bumpy roads and detours better than an airline captain! I wouldn't be without one now. (Cessna 195)

A. W. FREDERICK
Memphis, Tennessee

"The Missing Link"

It may well be that Bill Lear (AOPA 6975) has contributed one of the most important missing links to the development of private flying. It is quite conceivable that the L-2 right now could very well boost the average utility of a plane owned by a typical AOPA member from, say, an average of 50% to something like 90%. Such an increase in utility could, by itself, put civil aviation in the position of being one of the nation's healthiest, more thriving industries.

MAX KARANT
Editorial Director
Aircraft Owners & Pilots Assn.

"Increased the Airspeed Up to 15 MPH"

Slow flight down to 65 mph can be maintained with the L-2 autopilot so long as the prop turns up about 2000 rpm. The L-2 autopilot has increased the IAS from 10 to 15 mph (depending on altitude) due to the fact that it will hold the ship on the step perfectly, which is something that I am too lazy to do for any length of time. In short, I think the pilot is great and would not be without it. (Navion)

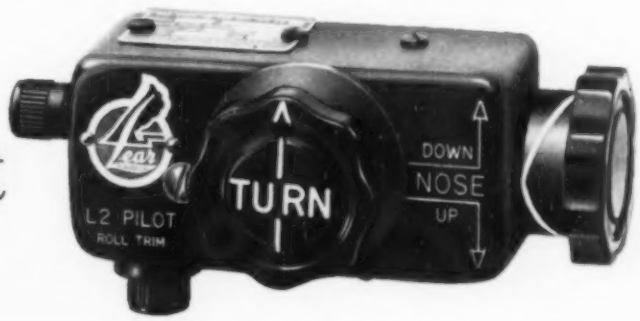
H. R. ELDRIDGE
Austin, Texas

"Will Never Have Another Plane Without It"

It is my opinion that the L-2 autopilot is the most outstanding contribution towards the safety and enjoyment of light plane flying ever made. When visibility is very low and most of your attention must be directed outside the plane the L-2 is invaluable. I also can visualize the great comfort to the inexperienced pilot, who suddenly finds himself in instrument conditions. He turns on the autopilot, and without fear of losing control, can devote his whole attention to getting out of the weather and returning to where he came from or contacting his nearest radio range for help and advice while the L-2 is holding any course or any altitude he desires. Our experience with the L-2 has been so satisfactory that we will never have another plane without having it equipped with an autopilot. It's the best life insurance you can buy. (Bonanza)

GEORGE V. KEITH
Milwaukee Crane & Service Co.
Cudahy, Wisconsin

the LEAR L2 autopilot



THE MAIL BOX

THE HOPPI-COPTER

What's the status of the Hoppi-Copter, the little one-man helicopter developed by Horace Pentecost? Several months ago, FLYING mentioned that the rights were sold to an English firm.

MANLEY R. GONZALES

El Paso, Tex.

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The photo was taken in late August, 1948, on a small midwestern airport. I believe it was in Iowa.

ROBERT E. TEPKE

Ithaca, N. Y

● *The plane (see photo) is the Avicar BF-8, a two-placer built by Kenneth Bailey of Dearborn, Mich. Engine is 65 h.p. The wings have only an eight-foot span and do not fold.*—ED.

HINTS ON HEDGE HOPPING

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In the case of the pull-ups, the hopper should be closed before the pull-up is started. This avoids wasting the farmers' expensive dust in the air. Since it isn't possible to get good coverage clear to the base of obstructions, "wipe-up" swaths should be laid along each boundary parallel to the obstructions before the job is considered complete.

I am enclosing a photo of one of our airplanes laying a swath in the proper

manner, which clearly shows the downward blast of the dust and the way the swath "breaks" and spreads, giving complete coverage on all parts of the plants . . .

AL CLEAVE

Mercedes Dusting Service
Mercedes, Tex.

THE XB-43

Reader Bertuzzi's letter in your March issue, asking about the XB-43, prompted me to write. The XB-43 was flying as late as last summer. I saw it at Lowry Air Force Base, Colo., while stationed there. The XB-43, a B-45 camera ship and several F-86's were up there in connection with the forthcoming movie *Jet Pilot*. The XB-43 was painted a dull black throughout, and there wasn't a single marking on it. Even the nose was masked with black tape. Combined with the pilot's twin bubble canopies, it gave the plane a most formidable appearance . . .

DALE E. HEWITT

Savannah, Ga.

FLYING'S INDEX

I can't tell you how much I miss and need the annual index to FLYING which you have been publishing each January in recent years. For the first time since I have been a subscriber, this index was omitted from the January issue.

JOHN C. WALKER

Milwaukee, Wis.

● FLYING *regrets that space limitations have not permitted it to continue publication of its annual indexes.* FLYING *is indexed, however, in the Readers' Guide to Periodical Literature, which is on file in most libraries. Being indexed in the Guide is a recognized mark of distinction, and only two aviation magazines—*FLYING *and Aviation Week—are listed in the guide.*—ED.

REBELLION IN PORTERVILLE

It's evident that Frank Adams has not visited wonderful Porterville (Calif.) Municipal Airport since his school days many years ago. Adams' cartoon in February FLYING (page 20) doesn't do us justice.

Since the cartoonist's days in Porterville, we've moved the farm implements from the mere 6,000-foot hard-surfaced runways. We've corraled all the cattle. All obstructions, including the mud puddles, have been moved away. The old wood hangar is no longer in existence. We've also got some new improvements—such as an electric beacon, runway lights and a new-fangled electric ear that operates the lights as they are needed.

SOME PORTERVILLE PILOTS

Porterville, Calif.

I've got a few things to get off my chest
Tho I realize it was only in jest—
Frank should take his pen and illustrate
The things that happened here of late.
That old wood hangar, she ain't no more,
She's all-metal now with an overhead door.
That old spring wagon gave up the ghost
And we burned up the wood at a weinie roast.
Remember the cow with the bovine leer?
We traded her in on an electric ear
So when we get home late at night
We can buzz the tower to turn on the light.
The cartoon's okay; I think it's great—
But I just want to keep the record straight.

R. C. FITZGEARL

Porterville, Calif.

● *Says unabashed cartoonist Frank Adams: "Times have changed . . . I was working from memory—and forgot to draw in the railroad that used to bisect the landing strip. In the old days, it wasn't too bad because the train ran only twice a week. Another bit of nostalgia: the old Porterville landing strip used to follow the contours of the hog wallows. Informal—like a roller coaster. The Portervillians are a great bunch, bless 'em! Some day if I can ever get caught up on my cartoon orders, I'll visit Porterville's modern municipal airport."*—ED.

FLYING
VOLUME 48, NO. 6
JUNE, 1951

WILL STIFF RULES MAKE FLYING SAFER?

Part 20 of the Civil Air Regulations will get a new, tougher look sometime this summer. It's going to be harder to earn that private license.

By JOHN T. DODSON

BY MID-SUMMER, new private pilots in the United States will be required to give more positive proof that they know how to handle their planes and that they can fly safely.

The CAA and CAB have announced that, by stiffening Part 20 of the Civil Air Regulations for the private pilot, they hope to "restore the private pilot certificate to respectability." Written examinations will be reinstated, required cross-country training and practice will be increased, and a more practical flight test will be instituted. In addition, the duties of the instructor toward flight students will be emphasized in changes not yet agreed upon.

Both changes, the CAA says, will be made effective at a date far enough in advance so it will cause no inconvenience to either students or instructors.

The question yet unanswered, and still agitating the industry, is whether these new regulations will cure the unhealthy condition now existing between the operator and the plane renter.

Many hope it will. Others fear it may prove a handicap to business by discouraging new pilots. Time will tell—but in the meantime it is recognized that the dignity, or at least the reputation, of the private pilot certificate is no longer impressive. CAA safety agents report most operators loath to rent their planes to anyone solely on the basis of possession of a private pilot certificate. This is particularly true when the pilot wants to make a cross-country flight.

Recently, a special committee was appointed in the CAA's Washington office, made up of representatives of all divisions of the Office of Aviation Safety. It was instructed to evaluate the problem and to recommend solutions.

The committee studied 6,920 accidents which resulted from unsafe acts by pilots, and it came up with six important recommendations:

- Better instruction in proper methods of preparing for flight. This includes the art of learning when to stay on the ground. Provision of better "ready-room" facilities, information, and assistance.
- More intensive instruction in the tricks of finding one's way where one wants to go, and alternate ways of getting there.
- Instruction in methods of estimating field sizes and field conditions from the air.
- Inculcating pilots with a better understanding of the performance characteristics of their airplanes: (1) air speed requirements in different airplanes in various flight situations, (2) field size requirements for airplanes, (3) best rate-of-climb methods for the planes flown.
- Improvements in performance and controllability in order to lessen the operational limitations of private-type airplanes.
- Development of methods to assist the private pilot in maintaining his proficiency. One way in which this might be done is through research to discover what weaknesses in technique tend to develop in the average pilot, the type of flying he really intends to do, the development of a suggested course which conscientious private pilots might follow in order to obtain additional familiarity with flight and flight-planning situations.

Members of the committee laid about them with an impartial axe in writing these recommendations. They criticized instructors. Though they admitted that the instructor does not have to "make a pilot" out of a student, they still (*Continued on page 57*)

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HINTS ON HEDGE HOPPING

In the Mississippi-Louisiana-Arkansas section and here in the Lower Rio Grande Valley where dusting with airplanes is an old established industry, the photos used to illustrate "Hedge Hopping Through the Dust" [March FLYING] are considered a perfect example of how *not* to put out dust. There has been a constant battle by operators to eliminate the high fast flying during the swath and leaving the hopper open on pull-ups to tree-top altitude. Instead, the airplane should be flown considerably below cruising speed and in a tail-low attitude a few feet above the ground so the dust is forced down into the crops instead of merely being released at high speed to

REBELLION IN PORTERVILLE

It's evident that Frank Adams hasn't visited wonderful Porterville (Calif.) Municipal Airport since his school days many years ago. Adams' cartoon in February FLYING (page 20) doesn't do us justice.

Since the cartoonist's days in Porterville, we've moved the farm implements from the

follow the contours of the hog wallows. Informal—like a roller coaster. The Portervillians are a great bunch, bless 'em! Some day if I can ever get caught up on my cartoon orders, I'll visit Porterville's modern municipal airport."—ED.

*in most libraries. Being indexed in the Guide is a recognized mark of distinction, and only two aviation magazines—*FLYING *and Aviation Week—are listed in the guide.*—ED.

FLYING
VOLUME 48, NO. 6
JUNE, 1951

AGES

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tatives of all divisions of the Office of Aviation Safety. It was instructed to evaluate the problem and to recommend solutions.

They criticized instructors. Though they admitted that the instructor does not have to "make a pilot" out of a student, they still (*Continued on page* 57)

UNIVERSITY OF MICHIGAN LIBRARIES

The Daily Telegraph 4 A.M.

and Morning Post

NINE CZECHS FLEE BY PLANE TO BRITAIN

EX-R.A.F. PILOT FAKED TEST FLIGHT: PILLOW-CASE SIGNAL

Captain Prchal

Escape Flight FROM *Prague*

By Capt. E. M. PRCHAL

MY STORY BEGINS in February, 1948, when I landed at Prague aerodrome after a three-week flight to and from India. I was returning to a country gripped by Communist fear, for in my three-week absence the Reds overnight had destroyed the Czech democracy and transformed the nation into a Russian satellite.

As I stepped from the plane I saw my wife's haunted face. She embraced me and whispered in mild surprise: "You have returned? I was afraid you would choose freedom."

This was an introduction to several years of whispering, of secret meetings, of hidden microphones in our rooms, of being hounded by the state police.

"Hurry up!" he shouted. He was coatless. His shirt was completely wet from perspiration. The loading took about 90 seconds.

This is the dramatic story of a daring escape from Communism, told by a man who was a 'slave pilot' on Czechoslovak Airlines.

Even then, only hours after the Communist putsch, I knew that our one faint hope lay in escaping from Communism. I had no illusions about our future. According to the political conception of this new Russian satellite, I had fought on the wrong side of the world during the past war. I had flown with the RAF after escaping from German-occupied Czechoslovakia in the early summer of 1939.

During those first few weeks of Communist rule in the country I had plenty of time to recall my war history—first with the French Air Force, then with the British during the Battle of Britain, then flying supplies to blitzed Malta.

For 72 months I had been a refugee from my own land, fighting on foreign fronts for Czechoslovakia's freedom. Then came the end of World War II and the return to our liberated country.

This time there was no Nazi Army. But the Russians were there, behaving with the same brutal possessiveness displayed by the Germans. The unshaved Russian soldiers "liberated" everything from watches to carpets to men's dress clothes which they didn't know how to wear. They violated our women, not sparing young girls who were hardly old enough to play with dolls.

The Red Army was not a liberation army. It was a medieval occupation force.

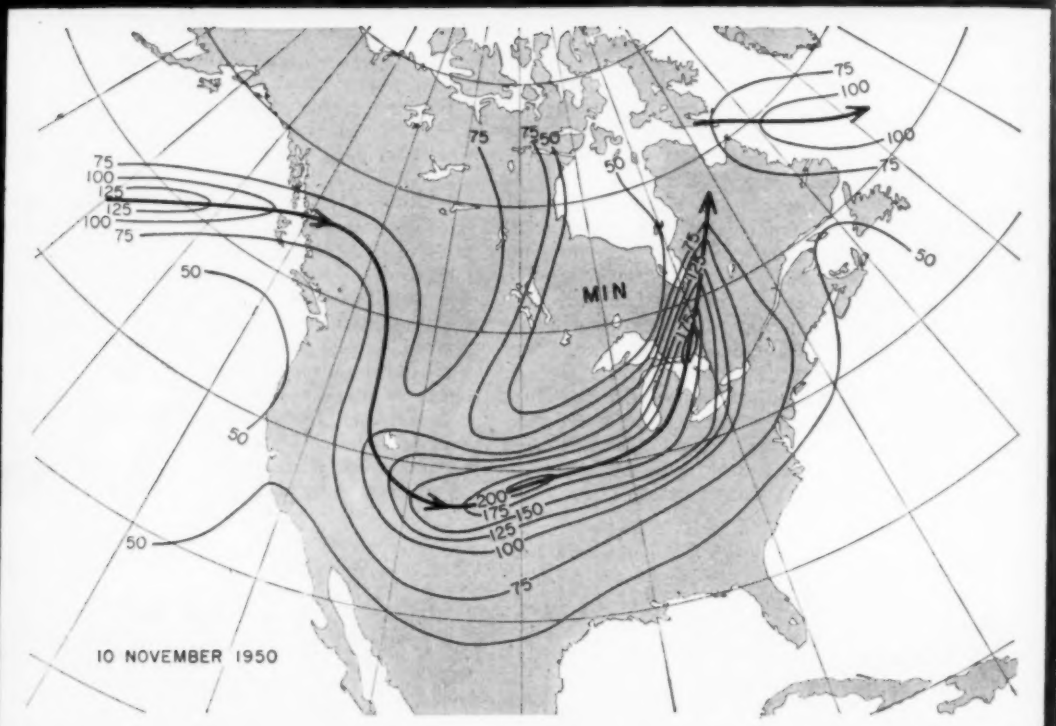
We were all disillusioned, we who had waited these years for freedom, but we hoped the occupation would be temporary. "It will soon pass over," we told one another.

I resigned my RAF commission and returned to Czechoslovakia for good, serving for a short while in the Czech Air Force.

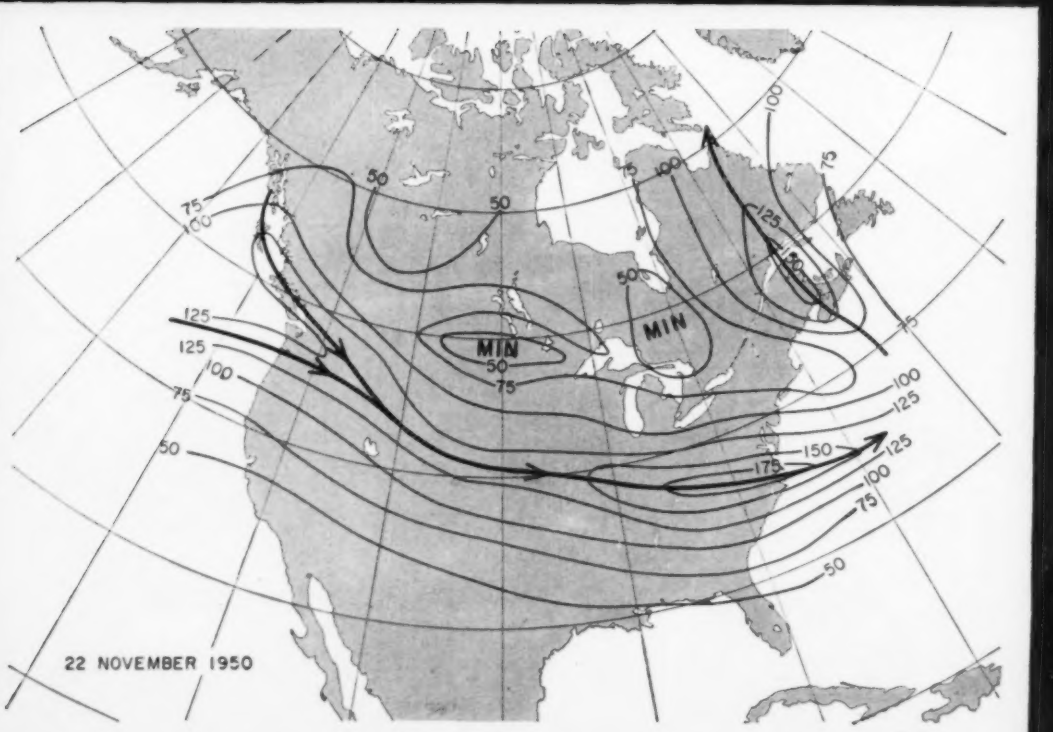
And within a few months we thought the situation was getting better. The Russians disappeared from the country. The Russian rulers stayed in the background, in the shadows. We didn't yet know that they did not need to parade Prague's boulevards in order to rule Czechoslovakia.

In January, 1946, I left the Air Force to go back to my old job—civilian airline pilot. We started the Czechoslovak Airlines almost from scraps, and within a few months had 35 (*Continued on page* 60)

THE JET STREAM WRITHES LIKE A SNAKE



On November 10, jet stream cut sharply down through central U.S., then turned northward. Line is roughly to scale.



Stream's track changes quickly, unpredictably. On November 22, 12 days later, two streams flowed together into one.

JET STREAM
—the Mystery Overhead

By HY SHERIDAN

What's behind the amazing reports of fast jet planes standing still in the sky?

THIS story is going to be quite a blow to a good many of us, and in both senses of the word.

There is a mystery overhead. Those of us who have thought that we were well acquainted with the ocean of air are bewildered. Professional meteorologists are burning the midnight pipe trying to figure out mathematics which will cover up the fact that they don't know what the hell. And Russia has been experimenting with the thing in the hope that they had stumbled upon a good, cheap and satisfying way to knock us all off—and without coming over here to do it, too. I am happy to report that they have given it up and gone back to the old slow policy of getting us to do it ourselves. They have been experimenting with the thing, though. And it is *The Thing*, all right. It doesn't even have a name.

Since it is difficult to explain a thing that doesn't have any explanation, as every husband knows, the clearest way to go about it is just to tell what has happened and what is going on.

The time was right after most of us had the naive opinion that World War II had ended. We had taken Japan over and they had taken us in. From time to time one of our pilots would leave the club house and dash about the blue just for the novelty of it. Well, one day one of them did this and he went on a little cross country and on the way back he gave by radio the time that he had passed a check point and his ETO, which in mundane words is Estimated Time Over, the next check point. The report went something like this, so the story goes:

"Over Takaluki at 1300; 27,000. Estimate Bakatchu at 1320."

Radio Tame Cat got that message and called for a repeat and got it. "Stand by," the operator told the pilot. There was something wrong. The pilot had an old paddle-wheeler, possibly an F-51, and at 27,000 it should barely be panting along. And it is 255 land miles from Takaluki to Bakatchu. That would be supersonic speed. The radio operator reported to the commanding officer and when the yap happy pilot got down he found the carpet out for him, that is, he found himself on the carpet. The doughy CO—this was before the famous "slimming" order was issued—the doughy CO gave the lad to know that the Air Force didn't give a hoot in a hoop-skirt what he said over a cocktail or under a cherry tree but when he was flying, by Spaatz, he had better stick to the facts. Besides it looked like hell on the records.

But the lieutenant stuck to his guns and so he found himself with a week in (*Continued on page* 54)

Dr. C. G. Rossby

The man who first conceived theory of jet stream, Dr. Rossby organized group of scientists at University of Chicago.

Dr. Herbert Riehl

Pioneer in research on the meteorological phenomena, Dr. Riehl discussed findings with FLYING's Hy Sheridan.

Chester W. Newton

Active in present-day research on the jet stream, Newton is an assistant to Dr. Riehl at University of Chicago.

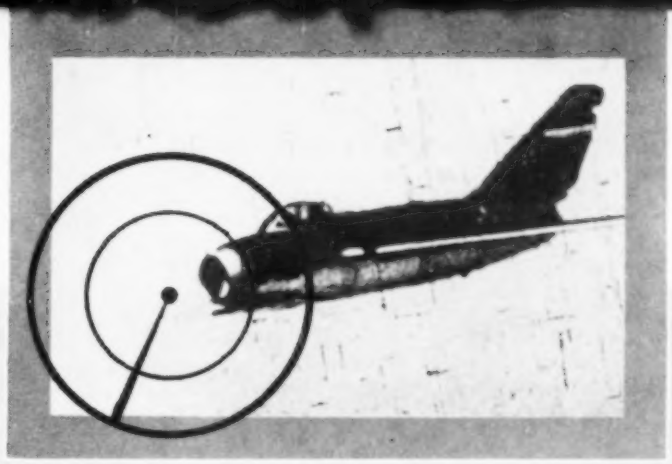
THE BIG RAT RACE

MEN WHO BEAT THE MIGS

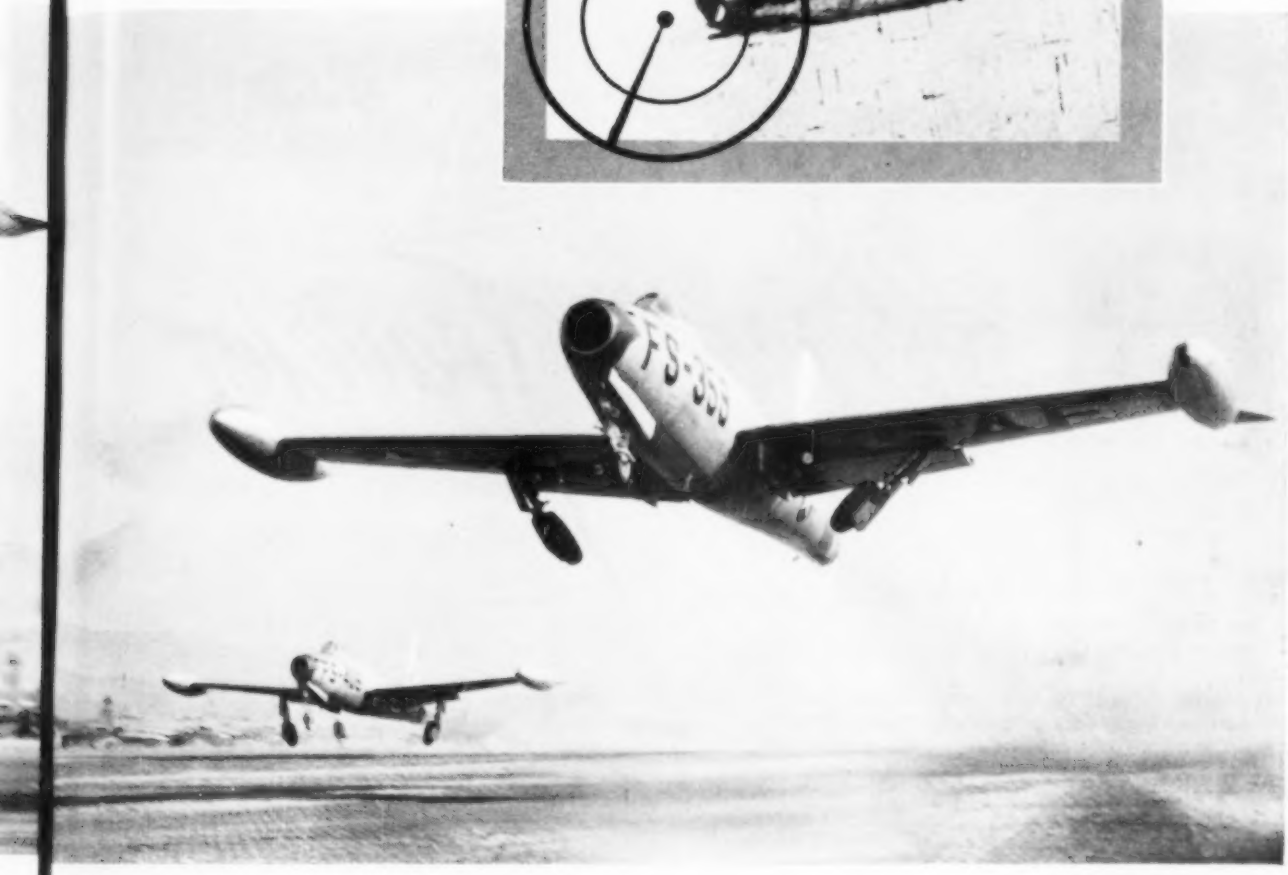
Group leader, Lieut. Col. Donald Blakeslee, was leading 33 Thunderjets against Red airport at Sinuiju when approximately 28 Migs were enticed into battle. At least four of the Migs were destroyed.

Mig-killers Capt. Billy Eden (left) and Capt. Allan McGuire leave F-84's after the dogfight. Eden had eight Migs "cornered" at one time. McGuire scored a "probable" kill.

He did it twice. Lieut. Jacob Kratt described one of his two kills: "I closed in and got on his tail and gave him a burst. The hits went in his tailpipe and rudder."



Out for bear, three Thunderjets roar off Korean airstrip on way to war's biggest jet dogfight. Migs like that at right were based at Manchurian airfield but crossed border to tangle with the F-84's. Not one F-84 was damaged by fast Communist fighters.



Thunderjet pilots tell how they licked the Migs in the biggest and wildest jet air battle in history.

By JOHN JEFFERSON

WITH THE 27TH FIGHTER-ESCORT GROUP IN KOREA—It was a clear cold day, ceiling and visibility unlimited. The pilots were briefed before dawn. Ostensibly they were assigned to strafe and rocket the enemy airport at Sinuiju, near the mouth of the Yalu river. But their real mission was to entice Russia's Mig-15's into battle, to set the stage for a decisive *Thunderjet*-versus-Mig engagement. On each of the three previous days the Migs had jumped the F-84's. The first time there was an exchange of fire but no claims were made by the American pilots. The next day Lieut. Col. W. E. Bertram of Chicago scored the first Mig kill. The third day 12 Migs and 12 *Thunderjets* tangled again, but no claims were made by the *Thunderjet* pilots.

Now they were going out for bear. Most of them were veterans of World War II. One flight was organized with three flight leaders together.

Thirty-three Republic fighters began roaring down the runway at 7 a.m. The sun was just coming into full bloom.

They made a left-hand pattern and formed up, led by their group commander, Lieut. Col. Donald Blakeslee, of Fairport Harbor, O. Flying at high altitude, they passed over Pyongyang, the Communist capital, and up the coast to the Yalu river and Sinuiju.

The pilots could see the high enemy revetments as they went in on their runs. Each *Thunderjet* was carrying two HVAR rockets plus the full .50-caliber ammunition load for its six machine guns. Twenty-four of the jets went in on the strafing run while nine others flew top cover.

The second flight was making (*Continued on page* 49)

Tommy Bartlett, a freckle-faced radio celebrity, used his Seabee to save four persons from death.

AVIATION'S *Welcome Traveler*

Tommy Bartlett

By CHARLES W. ROBERTS

THREE men and a 19-year-old expectant mother stood face to face with death on tiptoes last Labor Day on a sandbar in Lake Calumet, 17 miles south of Chicago's Loop.

A holiday fishing trip in a rented 12-foot rowboat had gone awry. Three-foot waves had swamped the flimsy craft, dumping them into frigid waters a mile offshore.

Miraculously, they had landed on a flooded sandbar which for two terrifying hours permitted them to keep their chins just above water. But a 29-m.p.h. wind was whipping up new whitecaps and their strength was running out. So was their hope of ever getting ashore alive.

One of the unlucky fishermen, Robert Brooks, 65, decided it was time to pray. When he looked heavenward, however, he saw the silver wings of an airplane flashing in the sun—.

"It's too rough to land," the pilot of the plane was saying at that moment. The pilot was Tommy Bartlett, radio-television star of the network show "Welcome Travelers." Bartlett had taken three friends out on another kind of outing. The friends, all performers in a "water thrill" show, wanted to get the thrill of landing on water in an airplane.

"Sorry," said Bartlett, looking at the boiling surf below.

After rescue, Bartlett and Stewart McDonald (left) watch while survivor is loaded into ambulance for trip to hospital. All were saved.

At hospital, nurse comforts survivors James Hayes, 20, and his wife, Larsene, a 19-year-old expectant mother. Their fishing craft had been swamped by three-foot waves.

A flying sportsman, Bartlett (above with Seabee) is a former airline pilot with over 7,000 hours. The 36-year-old radio network star holds half a dozen pilot ratings.

"I guess we'll have to go back and land with the wheels down. You guys will have to stick to your water skis for kicks."

Bartlett pulled back on the controls of his Republic *Seabee* amphibian, opened the throttle and drew a bead on Meigs Field, the airstrip on Chicago's Northerly Island where he had taken off an hour before.

As he did, one of his passengers made an observation that suddenly brought the two unrelated, unsuccessful Labor Day outings to a hair-raising climax.

"Hey! There're people in the water down there—and it's too cold for swimming," yelled Stewart McDonald, a 23-year-old Miami water skier who earns his living in a swimming suit.

Bartlett took a quick look under his right wing and made a fast change of plans. He saw an over-turned boat and four heads bobbing in the water.

"Hold your hats!" he shouted to his thrill-seeking friends.

If ever there was a welcome traveler it was Tommy Bartlett a few seconds later when (*Continued on page* 44)

He's A Veteran Pilot

RADIO'S 36-year-old Tommy Bartlett has more flying equipment and credentials than most private pilots acquire in a lifetime. He owns two airplanes—a *Seabee* and a Cessna 140. He has logged more than 7,000 hours. And he holds half a dozen pilot ratings: commercial, instructor, instrument, seaplane, single and multi-engined land plane.

The freckle-faced radio celebrity is known by pilots throughout the Midwest. Some of them knew Bartlett at Milwaukee where he taught flying to Army aviation cadets during the early days of World War II. Or at Madison, where he once landed a Cessna in a 70-m.p.h. gale—just as the hangar roof took off. Others knew him while he logged some 2,000 hours as a wartime pilot for Northwest Airlines, flying such tricky runs as the Aleutian route. Bush pilots in Canada know Bartlett as an able hand in a land or floatplane.

And at Glenview Naval Air Station near Chicago, birdmen in the ready room exclaimed: "That's the guy who lands here blind!"

The latter comment was not a reference to the drinking habits of Bartlett, a temperate man. Rather it referred to the fact that he makes eight to 10 "blind" Ground Controlled Approach landings a week at Glenview.

He does this partly to keep his hand in and mostly to keep the station's GCA crews in practice. Glenview's reserve pilots do most of their flying on weekends. Before Bartlett heard of their plight the GCA crewmen had no one to work with on weekdays. Now when the weekend warriors are away the crews work on Bartlett, with a special Lear receiver that he donated to the base.

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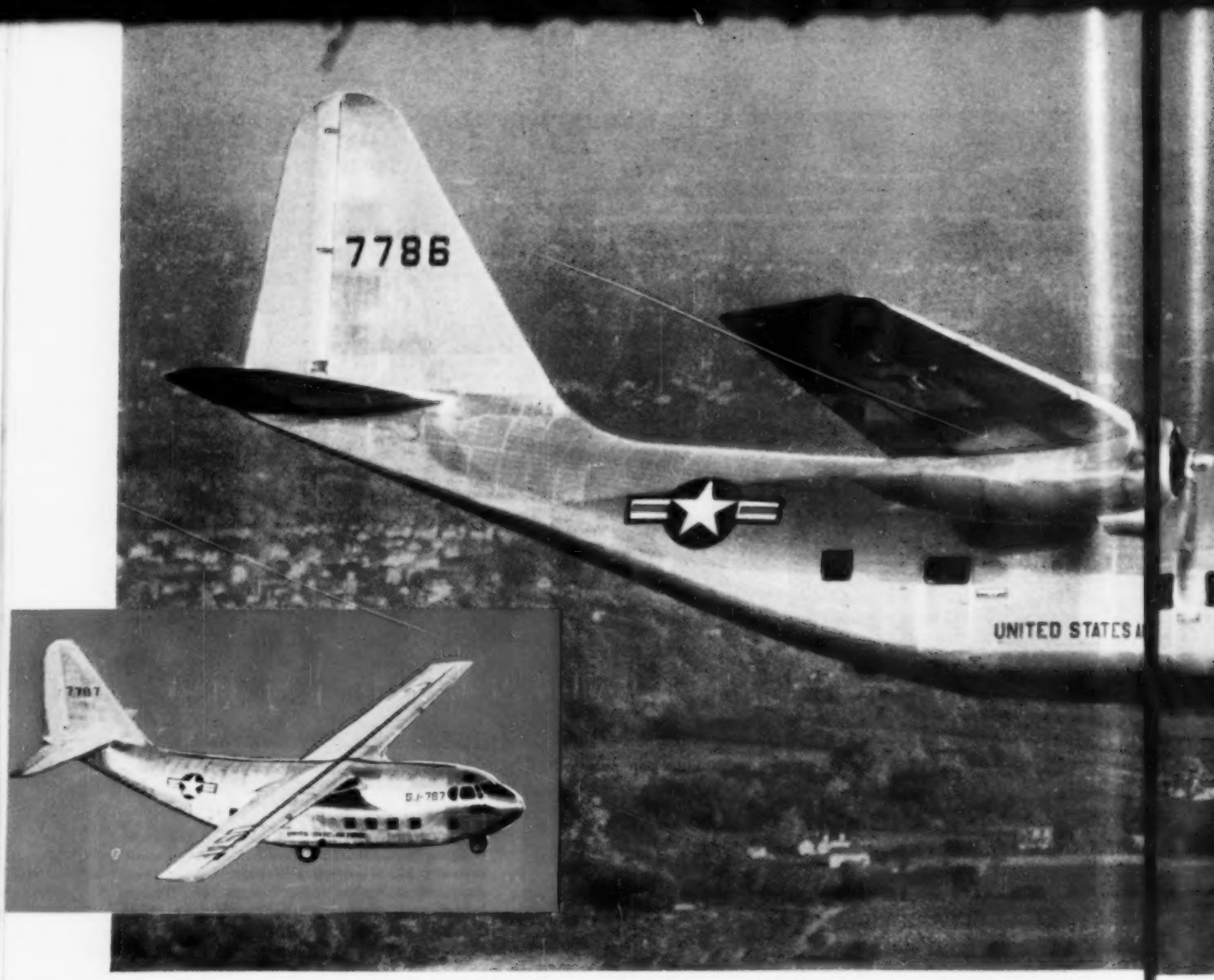

Assault planes like Chase XC-123 are built to fly troops, equipment into small forward airfields. G-20 (inset) is glider version of XC-123.

The Planes We Didn't Have

By R. G. NAUGLE

"KOREA is the kind of a war we're winning with the wrong tools," observed a high ranking Air Force officer the other day. He was referring to our lack of assault planes—the spearhead of airborne assault strikes. Assault planes are a new breed of cats to come out of the last war. But they're still in prototype form five years later—when we need them.

Korea was a natural for assault planes. Getting combat troops in fast in rough, rugged country behind the enemy lines for a little old-fashioned hell-raising is their main reason for being. But the assault plane is still mostly a paper idea in a world of action. To be precise about it we have only 11 assault planes! And they're prototypes. That's another name for an engineer's plaything.

We have 10 small Chase YC-122A's and one medium-size Chase XC-123 *Avitruc*. This is our aerial assault force in being. That's all we have to take over the job of the famed Waco glider-C-47 towplane team. True enough, we have several Northrop C-125A *Raiders* and an experimental stripped-down Fairchild C-82 *Packet* but the former was designed as a general-purpose commercial cargo carrier and is actually listed by the Air Force as an Arctic Rescue plane. The latter, of course, is the well-known cargo plane used by the Air Force. Both planes took part in the assault transport evaluation at Eglin Air Proving Ground, Florida, last September but the

A new breed of military planes came out of World War II but they weren't ready for Korea.

competition was won by the XC-123.

The assault planes are not to be confused with transports and cargo planes designed to be operated from hard-surfaced runways. The rugged assault craft are built to operate in rough terrain. This type of plane—which under certain circumstances would be expendable—is needed to deliver troops and equipment to unimproved fields in forward combat areas.

The assault planes we have are a direct outgrowth of the famous whistling packing-boxes of wood, wire and fabric we remember as the Waco CG-4A glider built during the past war by practically everyone in the country who owned a hammer, saw and welding-torch. That's the historical origin but actually the powered assault plane began with the firm conviction that there was never anything wrong with a glider that an engine or two wouldn't fix up. Assault planes started out as half-glider, half-airplane. But they have grown into full-fledged airplanes and to the military minds they're an increasingly important weapon of warfare. Assault planes are purely a tactical tool and their primary mission, according to the official handbook, is "the transport of airborne troops and their equipment into small unprepared fields in forward combat areas."

But assault planes are also a highly controversial weapon.

Military tacticians of the old school gravely point to their basic weakness—a complete lack of defensive armor and their consequent need for close fighter support. They can't operate in areas where enemy air superiority can be even momentarily maintained.

This weakness was dramatically demonstrated in World War II when a fleet of Messerschmitt Me-323 powered gliders tried to airlift desperately needed German troops to North Africa and started across the Mediterranean to Bizerte without fighter escort. Allied fighters jumped the defenseless fleet and slaughtered them in a few minutes in the bloodiest aerial clobbering ever to redden the skies. The Germans never tried it again.

The giant Me-323 was in a sense the stepfather of our present assault planes. Called the *Gigant*, these huge cumbersome all-wood monsters were converted from Me-321 troop gliders by bolting six 900-h.p. Gnome-Rhone radial engines along the wing leading edge, giving them barely enough power to maintain flight. Designed specifically for the invasion of England they weighed 120,000

ASSAULT PLANE'S STEPFATHER

Designed by the Nazis for the invasion of England, the giant Me-323 was a cumbersome all-wood monster converted from Me-321 troop glider by bolting six 900-h.p. Gnome-Rhone radial engines along wing leading edge. Engines barely gave enough power to maintain flight. Me-323 weighed 120,000 lbs., carried 100 troops. Over 250 planes were built. They were used mainly in Crimea.

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Three powered gliders were wartime conversions of the Waco CG-4A glider. The PG-1 (top) had two 125-h.p. power packs, each bolted to a lift strut. It had absolute ceiling of 50 feet! The PG-2 (center) had more power—two 200-h.p. Ranger engines in Grumman Widgeon nacelles. Ten PG-2A's were built by the Northwest Aeronautical Company. The PG-3 (bottom) was an attempt to use two 325-h.p. Jacobs engines in Cessna Bobcat nacelles. In 1945, the project was dropped.

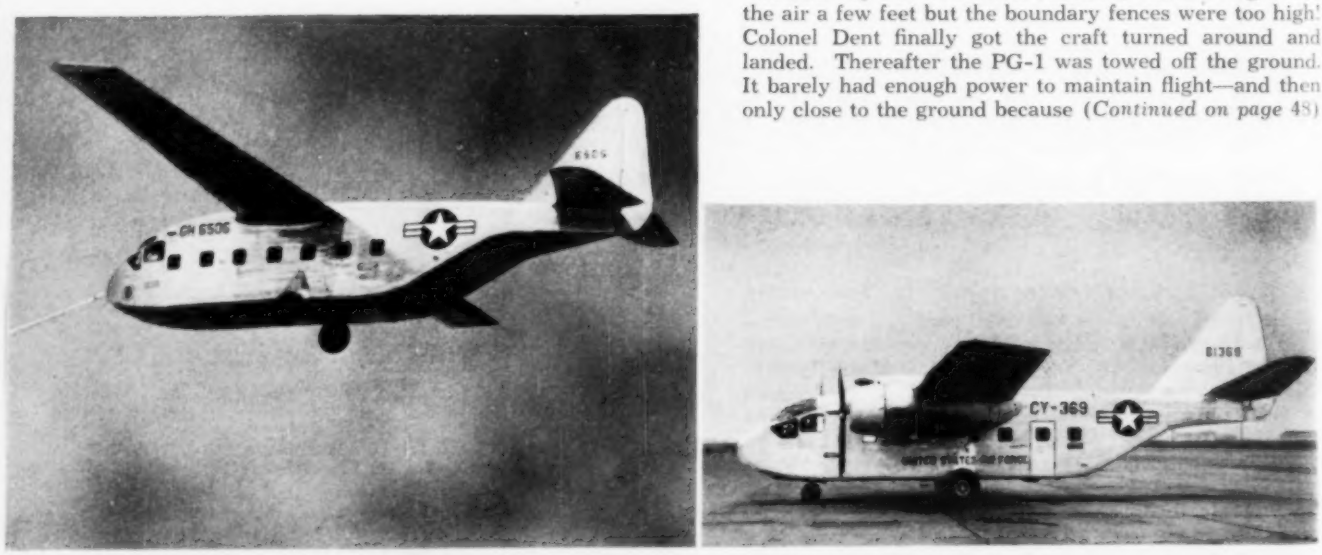
pounds and carried 100 troops. They were used spasmodically in the Crimea where Russian fighters were scarce. Over 250 were built but few were used other than to carry cargo—and then after turrets and protective armor were added. The Me-323 was a lesson that assault-plane skeptics have long remembered.

But the complexities of towing and the difficulty of later retrieving gliders challenged the tactical and logistic thinking of our own military leaders just as it did the Germans. Such operations tie down a huge fleet of tow planes and the flight crews to man them. Consequently, late in the war our Air Force's development center at Wright Field, Dayton, O., accepted a development proposal from the Northwest Aeronautical Corp., of Minneapolis, Minn., to add a single 200-h.p. engine in a self-contained nacelle to one of the lift struts of a standard Waco CG-4A glider to give it glide-stretch and get-home power. This odd arrangement was to be known as the PG-1 (PG—Powered Glider). The thinking at the time was still to take off under tow and to use the engine to maneuver into the landing zone and to allow the glider to be retrieved later and flown back empty to its base under its own power. It was also felt that the powerless glider could be flown in without engine and, after the area had been mopped up, the remaining salvageable gliders could be flown back to their staging bases with power packs. The engine nacelle was to be designed as an easily attached self-contained power pack carrying its own fuel and accessories and was to fit on any standard Waco glider.

This original version of the PG-1 never got off the drawing board because it was proved that it could not get off the ground.

Consequently, the single-engined PG-1 was re-hashed and the power jumped to two power packs each bolted to a lift strut and carrying a 125-h.p. opposed Franklin engine. A test installation was made by the Richfield Engineering Co., of New Jersey. Col. Frederick R. Dent, Jr., (now Brigadier General Dent, commanding general, Air Development Force, Air Research and Development Command) recognized the tactical importance of the idea and went personally to Minneapolis to fly the prototype.

The first flight of the PG-1 was perhaps one of the strangest in aerial history, according to Jack Rohn of Wright Field, who was a project engineer at the time. Differing only slightly from the barnyard racer that "wouldn't fly but would taxi like hell," the PG-1 got into the air a few feet but the boundary fences were too high! Colonel Dent finally got the craft turned around and landed. Thereafter the PG-1 was towed off the ground. It barely had enough power to maintain flight—and then only close to the ground because (*Continued on page 48*)



First assault plane designed and built from scratch for Air Force and Army is Chase C-122 (right). Its glider version, XG-18 (left), was designed for easy conversion to powered assault plane. The C-122 grosses 35,000 pounds, is powered by two 1,475-h.p. engines.

Captain Vinther (right) and co-pilot James F. Bachmeier examine sketch of strange object. Vinther, 33, has over 8,000 hours, is ex-USAAF cadet instructor.

The Office of Naval Research claims that cosmic ray balloons explain all "saucer" reports. If so, what did this pilot see?

AN AIRLINE CAPTAIN REPORTS:

Another Saucer Mystery

When the Office of Naval Research recently disclosed that all "reliable reports" of flying saucers can be attributed to cosmic balloons, the nation's press sat back stolidly and accepted the statement at face value.

The press services, the leading weekly news magazines, most of the country's newspapers and a host of periodicals hailed the revelation as the solution to a long-standing mystery.

Yet the mystery is not solved. It has only been deepened.

In the past 11 months, FLYING *has reported the observations of five veteran airline pilots who, along with their co-pilots, encountered strange objects flying over the United States.*

Last July, FLYING *said: ". . . it is obvious that skilled pilots, trained observers of sky phenomena, saw something. If they saw it, it must exist. They are not all victims of hallucinations despite the ready explanations of the physicists. But what the strange phenomena are, the editors of* FLYING *do not pretend to know."*

The following is a report from a veteran Mid-Continent Airlines captain, the sixth report of this type to be published in FLYING.—THE EDITORS.

By LAWRENCE W. VINTHER
Captain, Mid-Continent Airlines

I WAS taxiing out for take-off at Sioux City, Ia., on Mid-Continent Airlines' scheduled Flight 9 of January 20, 1951, when the tower asked if I would investigate a very bright light west of the field. I told him that what he saw was a star.

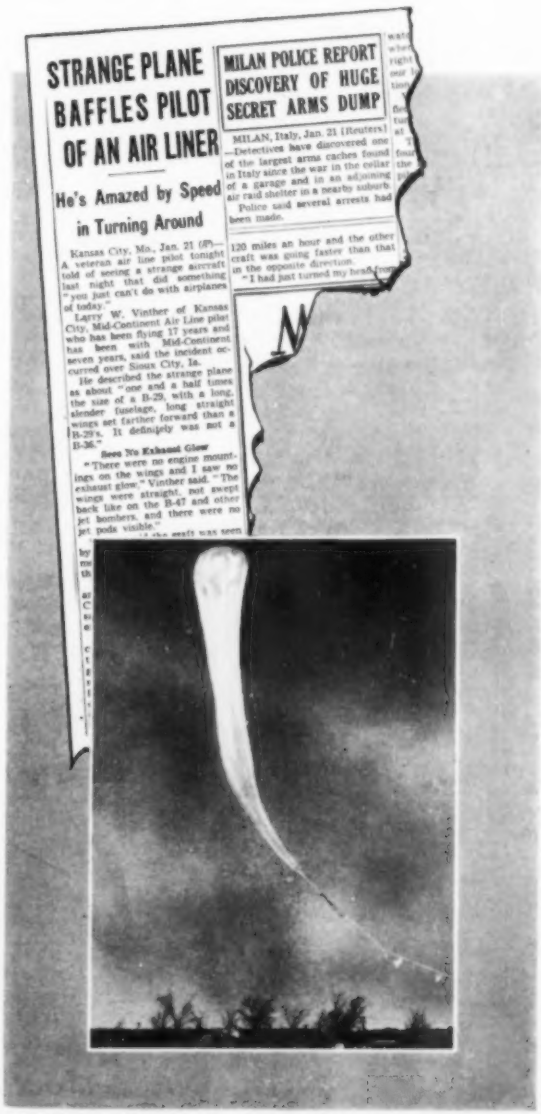
"No," the tower said, "I see what you mean, but this is higher than that—about 8,000 feet."

Looking higher, I saw the light moving from north to south, west of the field and fairly high. I agreed to investigate it.

The crew of the Mid-Continent Airlines DC-3 that night, in addition to myself, included Co-pilot James F. Bachmeier, a lieutenant commander in the Naval Air Reserve (who returned to active duty March 1, as commanding officer of a supply squadron), veteran of World War II in the South Pacific where encounters with Jap night fighters were commonplace. Bachmeier had flown nearly four years with Mid-Continent and had a total flight time of over 6,000 hours.

Immediately after a northwest take-off, a left climbing turn was started, following the left-hand circle of the observed light. The radius of the circle of the light was at least two miles—possibly more—outside the circle made by the DC-3.

Southeast of the field the strange (*Continued on page* 56)



STRANGE PLANE BAFFLES PILOT OF AN AIR LINER

He's Amazed by Speed in Turning Around

Kansas City, Mo., Jan. 21 (AP)—A veteran air line pilot tonight told of seeing a strange aircraft last night that did something "you just can't do with airplanes of today."

Larry W. Vinther of Kansas City, Mid-Continent Air Line pilot who has been flying 17 years and has been with Mid-Continent seven years, said the incident occurred over Sioux City, Ia.

He described the strange plane as about "one and a half times the size of a B-29, with a long, slender fuselage, long straight wings set farther forward than a B-29's. It definitely was not a B-36."

Sees No Exhaust Glow

"There were no engine mountings on the wings and I saw no exhaust glow," Vinther said. "The wings were straight, not swept back like on the B-47 and other jet bombers, and there were no jet pods visible."

MILAN POLICE REPORT DISCOVERY OF HUGE SECRET ARMS DUMP

MILAN, Italy, Jan. 21 (Reuters)—Detectives have discovered one of the largest arms caches found in Italy since the war in the cellar of a garage and in an adjoining air raid shelter in a nearby suburb.

Police said several arrests had been made.

120 miles an hour and the other craft was going faster than that in the opposite direction.

"I had just turned my head from

Skyhook balloons rise to great heights to measure cosmic rays. Under some lighting conditions they resemble "flying saucers." Big question: Do they explain all "saucer" reports?

Volunteer pilots begin work on hangar at 8 a.m. Job took them 10 hrs. 16 mins.

Time out for refreshments. Women pass up cokes and sandwiches to workers on roof of the hangar.

Corrugated sheets from B-17 midwing sections (on truck) were used for roof (in background).

The Hangar that Bombers Built

Flying Fortresses and ingenuity solve a plane-housing problem.

DR. OTIS McKINLEY is a Detroit dentist who loves to fly—and who owns McKinley Airport at Fraser, Mich. He's also a guy who has ideas.

Shortly after the war, he heard it was possible to buy parts for surplus planes. So he bought spars and sheeting from 278 B-17 midwing sections and decided to use the material for a unique purpose.

He stocked up on beer, ($55 worth), beef ($240), Cokes ($40), doughnuts ($45), coffee and cream ($20) and buns ($45). Then he wrote out an invitation to pilots at the airport:

"You've probably heard about the hangar-raising. If not, here are the final plans . . . The mason work is now complete. Roofing trusses and beams are complete and the steer will be started and cooked all the night before so it will be ready early. There will be coffee and Cokes all day but the beer won't be tapped until the roof is over it . . .

"We want to keep this party just for pilots. Let us know if we can depend upon you to be here, hammer in hand."

On hangar-raising day, over 100 pilots crowded the airport, waiting for directions from Dr. McKinley (who had rented a sound-car for the occasion).

Slightly over 10 hours later the 660-foot-long hangar (he had built two previously) was finished and ready to house 31 planes. Total cost: about $8,000.

Dr. McKinley started the airport five years ago as a hobby. All his principal buildings and hangars are built from surplus B-17 sections, the spars used for roof beams, the wingskin for door covers, the corrugation from wings for the roofs. Hangar door hinges are made from B-17 wingtips. END

PHOTOS BY FRANK FULKERSIN

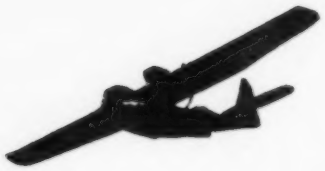
Before workers arrived, field was deserted and only masonry work showed where hangar would stand. Dr. Otis McKinley, airport owner, designed building and supervised construction. Total cost of 31-bay hangar, including supplies, preliminary work and refreshments: $8,000.

The hangar goes up. At mid-day, work was in full progress while a short-horned steer was cooking in barbeque pit. When hangar was completed, a bonfire was built and kegs of beer were tapped. Dr. McKinley, a dentist, operates the airport at Fraser, Mich., as a hobby.

Pilots take a breather late in afternoon. Flying clubs from Lansing and Pontiac, Mich., joined in operation. Dr. McKinley directed construction with aid of sound car.

Workers' rewards at end of hard day were thick slabs of barbequed beef, big mugs of beer and bonfire party.

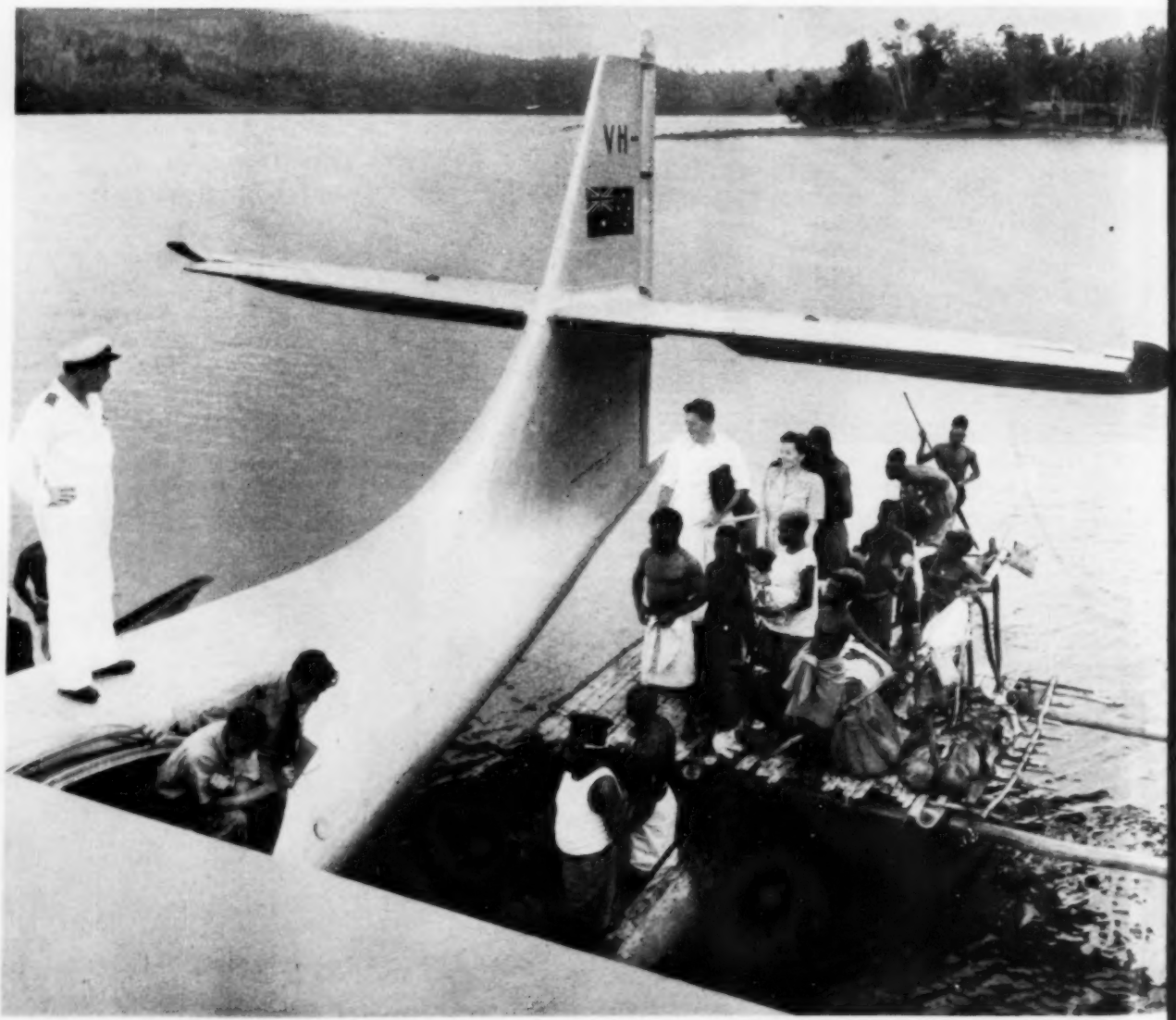
Rusted shipwrecks litter the shore
and jungle spreads across old runways,
but the Catalinas still fly overhead.



a Cat in the south seas

By CAPT. HUGH BIRCH D. F. C.

Former Royal Australian Air Force Captain and one of original members of first Australian Squadron in England



Outrigger canoe meets 'Island Chieftain' at Arawe, New Britain, on its way to Rabaul. The Catalina covers nearly 4,000 miles over three routes each two weeks, plus short side trips as the occasion arises. It serves the lonely outposts that were once overrun in Pacific war.

Aboard the Catalina are planters and overseers with their families, native Papuans, luggage and cargo of all kinds. Seaplane eliminates problem of maintaining airstrips.

Kavatarian belle typifies handsome native girls in some isolated sections. She is holding giant yam.

Capt. Birch

"LAST ITEM, one crate of mummified hands—"

"And three stretcher cases to come. Is there room?"

The scene is Kikori in the Territory of Papua. Muddy waters swirl about the gleaming hull of the *Catalina* flying boat *Island Chieftain*—the *Cat* to her familiars. We are returning from the western run covered every two weeks by the Qantas Empire Airways from Port Moresby, capital of the Territory of Papua and the Trust Territory of New Guinea.

Each two weeks we fly 3,940 miles—958 on the two-day western run to Kutubu and Murray, 1,277 on the two-day eastern run to the Trobriands, 1,705 on the four-day northern run to New Britain and Bougainville Island.

Kikori in the Gulf Division is a typical outstation with roomy thatched houses under coconut palms on a steep lawn-covered river bank. There is no hotel, so passengers who arrive in the *Cat* are made welcome guests by the residents.

Yesterday we left Moresby at 6:30 in the morning with a typical cargo. Among our 17 passengers were the Director of District Services, a district officer with his wife and child, a patrol officer, a geologist going into the jungle for the Australasian Petroleum Company. There were also natives, blase about air travel. The "Balus" (literally "pigeon" but meaning "airplane") are now accepted as another of the everyday marvels, "fashion belong white man."

We carry a mixed load of freight. Today we are loading a crate of mummified hands destined for the British Museum. We have carried tractor wheels, a half-mile coil of telephone cable, a parcel of 700 crabs.

Yesterday we brought boxes of fresh meat, about 700 pounds. The residents don't mind (*Continued on page* 51)

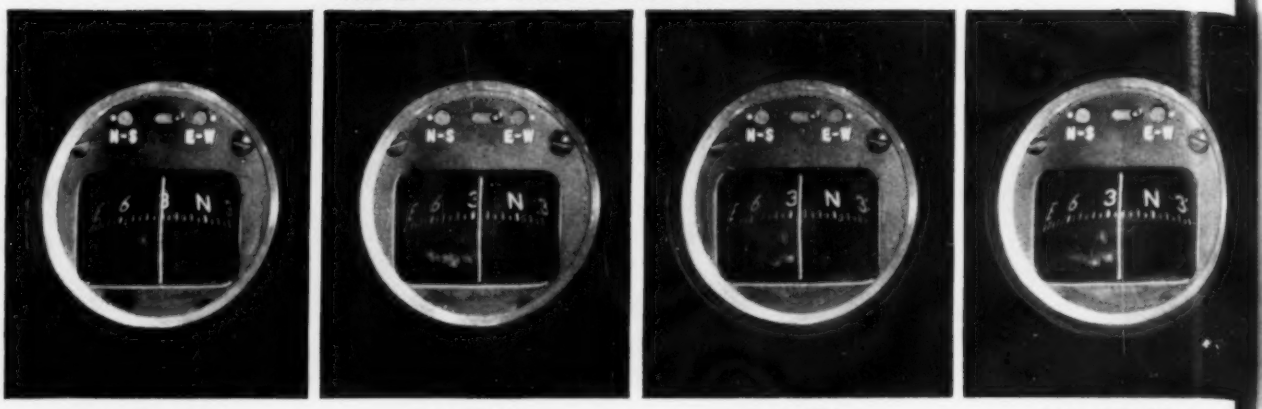
PHOTOGRAPHS BY V. GADSBY

Empire of the Catalina is this area described in the accompanying article.

Home on Bougainville, typical passengers are Mr. and Mrs. Paul Mason who are ferried from Catalina with canoe load of native laborers brought to work on copra plantation.

That No Good Magnetic

THE EDITORS CHECK A MAGNETIC COMPASS



Everything "Off" **Radio "On"** **Engine "On"** **Engine, Radio "On"**

How much deviation do you get with an ordinary magnetic compass? A FLYING editor recorded these readings in a Stinson at General Air Service, Chicago. Results show a maximum compass error of 10°. True heading of plane was 31°. First photo shows one degree error caused by earth's magnetism and plane's structure. With radio, electrical equipment on, reading was 25° (six degree error). With only engine running, compass read 24°. When engine was running, radio on, reading was 21°, a total deviation of 10°.

By ED HOADLEY

Hoadley

IT WAS SPITTING snow in the Rocky Mountains north of Cheyenne, Wyo. The Bellanca *Cruisair* tossed on the leeward side of mighty Laramie peak. The sensitive altimeter wound and unwound several thousand feet. My magnetic compass was supposed to read 120°, as I cut across the dog-leg of Amber three Airway towards Cheyenne.

The compass jumped and jiggled from 45° to 200° in rapid, oscillating sequence. With visibility limited by white snow-dust, a good radio and gyro compass would have been mighty handy. An hour and a half later I slid into Denver, shaken, and resolved again to quit compass navigation.

What is this "compass navigation?" It means travelling accurately to your destination using the compass as a primary guide. This seems elementary. We all do this, thinking nothing of it—or do we?

How many pilots today rely on the compass as an accurate indication of direction? We all say that we do, yet actually we do not. I am not referring to some of the finer aircraft that have radio compasses, gyros and so forth; nor to night-flying in well-equipped planes. I refer to the typical garden variety of lightplane as it rests on your airport today.

The compass should be relegated to its true secondary status in the cockpit. All this blarney in the manuals and textbooks about one and two degree corrections in dead reckoning should be stopped. Student pilots should know how vicious this instrument can be and how to get along with or without it.

In ground school we study for weeks how to fly exactly an 88° course, for instance. Yet an 88° or even a 90° "on the button" course is an impossibility. Commercial pilots have passed rigid CAA examinations on problems involving one degree errors. This is good training for the finest of airplanes. But in a lightplane what do these same pilots do? They head for a check-point, click their chronograph (check their $2 watch) and make some quick calculations. Then—and only then—do they establish a heading by the compass. Even while flying this established heading, their chart and check-points are still the only accurate guides they have. In rough air they could leave that compass home.

The quaintest feature of all is that back in the hangar these same pilots will expound the virtues of following the compass exactly. Pilotage? No sir-ee. They insist they follow their compass from port to port!

I wouldn't dream of crossing the desolate mountains of West Virginia without an accurate watch; yet, according to the books, I am supposed to cross those same peaks, gorges and forests, relying only on an instrument that probably will be off from 20° to 60°, and erratically off at that.

During World War II one of our Fort Sill, Okla., liaison projects was to find out why magnetic compasses drive good pilots nuts. For weeks I studied the problem of how to correct a lightplane compass so it would be ready for variation and deviation pilot errors.

We were familiar with swinging the airplane. We were familiar with deviation caused by magnetos. We did not know that varied magneto strengths would vary the magnetic pull on the compass. We (*Continued on page* 56)

Compass

Magnetic compasses often fail when you most need them, warns old-time pilot who learned his lesson years ago in a Rocky Mountain snowstorm.

Artist's conception by Julian S. Krupa

Leaving wide vapor trails, these Forts head for Germany at high altitude. Big weakness of Bomber Group X was lack of teamwork and precision on such missions.

By Col. DALE O. SMITH

IN THE AUTUMN of 1943 Colonel Jones assumed command of a combat group of *Flying Fortresses* in England. He, as an unknown to the people in the organization, replaced a group commander who had been almost worshipped by the 3,000 people comprising the group. Under the original commander the outfit had been sorely punished by the enemy. Its combat ranks had been thrice decimated within the past six months. Its record of successful attacks had been poor. And its morale for the job of war had plummeted to the nadir. The original commander could hardly have been held responsible for this unhealthy situation. Nonetheless, as is the human way in crises, heads must fall and the division commander saw fit to make a change. The group lost the leader it loved. He was replaced by someone none had heard of, a stranger, a Colonel Jones.

When he passed through the gates of his new station, Colonel Jones knew of this condition only in a vague sort of way. He had no appreciation of the intensity of feeling that had existed, and still existed, for the relieved hero-leader-father figure. The men felt their old CO had been heartlessly separated by a high command which had little first-hand conception of the desperate warfare.

Neither did Colonel Jones have an understanding of the extreme mass sensitiveness that existed. It existed because of the implication that the proud group, which had left so many of its fighters in Nazi Europe, was not doing well. Could all that bloodshed of friends have been in vain? The switch of commanders had focused the questioning eyes of the entire 8th Air Force upon this group and the men resented it. But most serious was the thought of each air- (*Continued on page* 58)

the Ordeal of BOMBER GROUP X

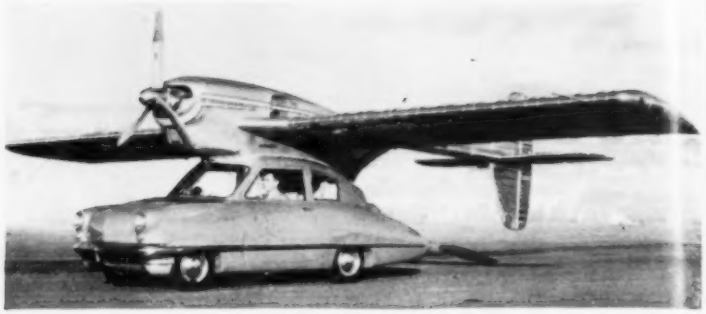
Reprinted from the "Air University Quarterly Review." Article originally was titled "A Problem in Leadership."

The men of Group X didn't try to hide their hatred of the new C.O. He knew he faced a bitter fight.

Engulfed in flames, this Fortress plummeted to earth after a direct hit by antiaircraft fire. None of the crew escaped.

A German Me-110 veers off the wing of a B-17 during a target run. On some missions the losses of Group X were 20 per cent.

If personal planes were bought by only one per cent of automobile owners, the U. S. would have an annual production rate of over 50,000 lightplanes!



Flying auto like experimental Convair craft might boost sales, says author.

Must the Plane Be a Car?

By HARLAND WILSON

WHEN the post-war personal plane boom collapsed the most surprised people in the country were those in the aviation business itself. They were familiar with airplanes; they were the ones who used them and who knew their great value under special circumstances. Indeed, even today no observer who knows the facts disputes for a moment that airplanes are not only the fastest but the most economical means of travel over long distances.

When the boom began to collapse there were all manner of diagnoses of what was wrong with the patient and suggestions on how to cure it. Personal flying was too expensive; it was too dangerous; it lacked utility; planes were no good; operators were no good; there weren't enough airports; the CAA really hated personal flying and was out to do it in.

You have heard all the answers and some of them are partly right but all of them are mostly wrong. For instance—.

- Personal flying is cheaper than driving an automobile—if you fly enough—
- It is not dangerous if you use your head about (a) spins, (b) weather, and (c) buzzing—
- It does not lack utility if you are a flying farmer or a flying salesman—
- Planes fly faster, land slower, and are much better constructed than ever before in history—
- Operators are not always the best salesmen in the world, it is true, yet they love aviation and hang onto a poor business with a devotion that deserves praise and sympathy and not jeers from the self-appointed critics of the industry—
- There are too many airports already. They are closing up faster than they are opening—that ought to be proof enough—
- The CAA only hates personal flying some of the time—

All these half truths, and all the important analyses of aviation in the recent past, have ignored a fundamental question which has never before, so far as this writer knows, been answered:

Do people really want to travel? Are people really prepared to take advantage of the admitted speed advantages that the airplane offers over long distances?

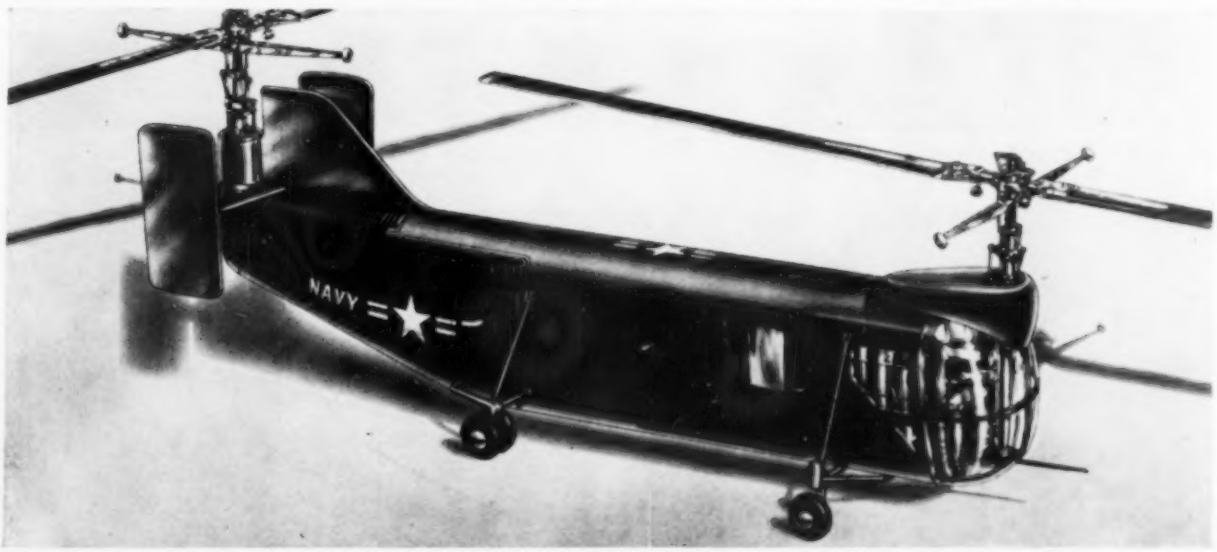
This is the most important question facing private flying today. There is no certain answer because no study has ever been made of the specific problem, but this writer has reason to believe that the preponderant majority of people do not travel, do not need to travel, and do not want to travel the long (*Continued on page* 47)

Fulton Airphibian, a flying automobile with detachable fuselage, doubles as plane or car.

☆ ☆ ☆ ☆ ☆ ☆ ☆ ☆ ☆ HAVE YOU SEEN?

Convair Turboliner flies for first time. Plane has two 2,750-h.p. Allison 501 turboprop engines and is to be used for research.

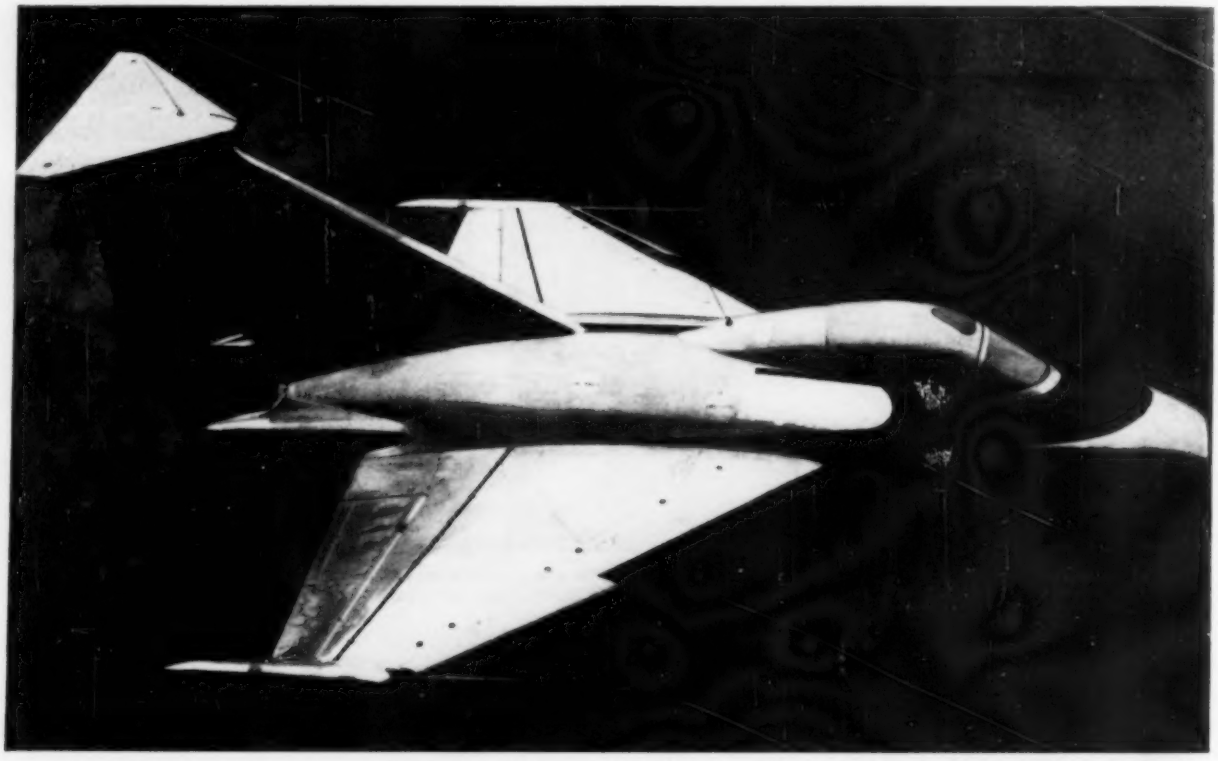
McCulloch Motors MC-4 is new tandem two-place helicopter with side-by-side seating, dual controls, 100-m.p.h. top speed, 85 m.p.h. cruise. Copter weighs 1,200 pounds empty, has 600-pound useful load. It is development of JOV helicopter of 1947.



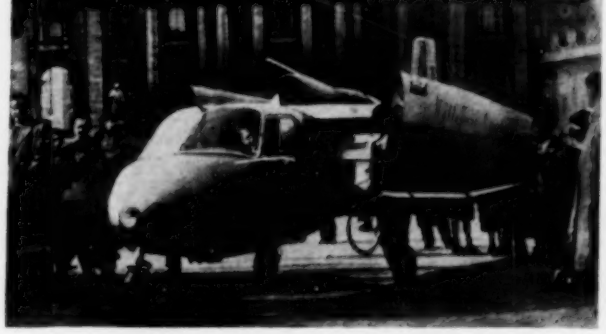
First tandem-rotored Bell helicopter is new Navy XHSL-1 which uses quadricycle landing gear and horizontal stabilizers and fins similar to fixed-wing craft. Basic Bell rotor system principles are incorporated. Engine is P.&W. R-2800. Three are on order.

World War I Spad XIII C.1 has recently been reassembled by Institute of Aeronautical Sciences with aid of Court Johnson.

Heath convertible plane flew in 1937, is still in development as Herrick Converta Plane. It flies as biplane or with rotor.

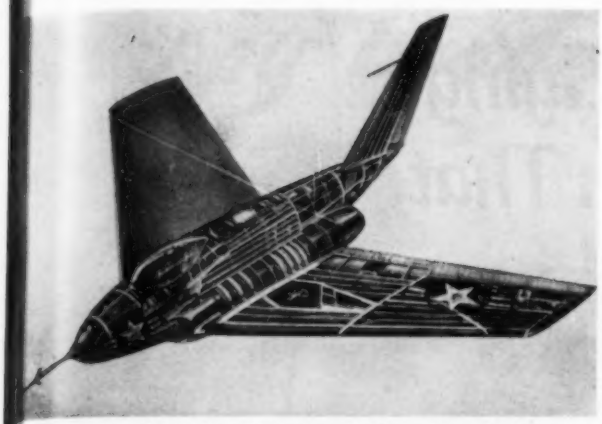


New delta-winged British research plane is Fairey F.D.1, powered by Rolls-Royce Derwent turbojet. Craft first flew on March 12. Tailplane and wing slots have been fitted for first trials, may not be on final version. Wingspan of craft is only 19 ft. 6½ in.



Italian roadable is Aerauto PL.5C, two-placer powered by 85-h.p. Continental. Outer wings fold, guard the pusher prop.

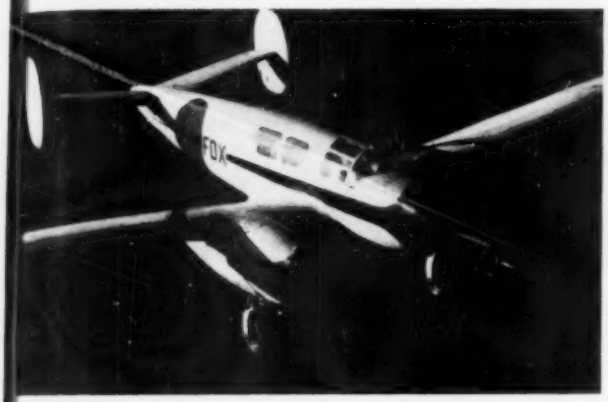
First jet plane designed in Australia is "Project C," intended as radio-controlled target. Power is 1,100-lb. S.T. Adder jet.



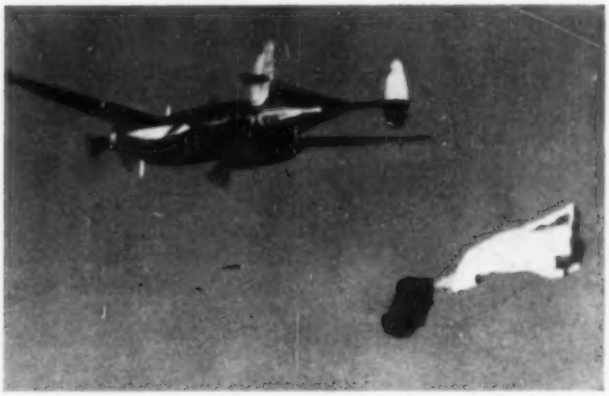
Cutaway of Northrop X-4 research plane shows fuselage packed with equipment, instruments. Wings have integral tanks.

Turboprop version of Douglas C-124 Globemaster II transport is under construction. Flight compartment is pressurized.

FRENCH PLANES

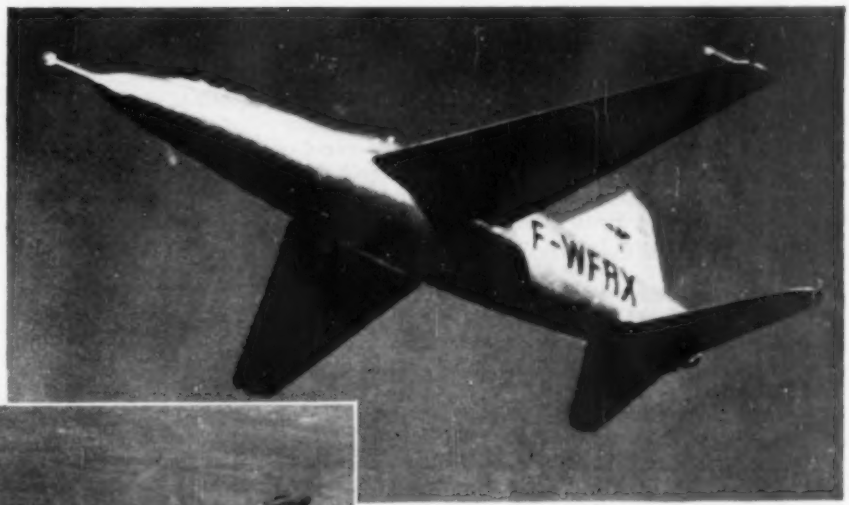


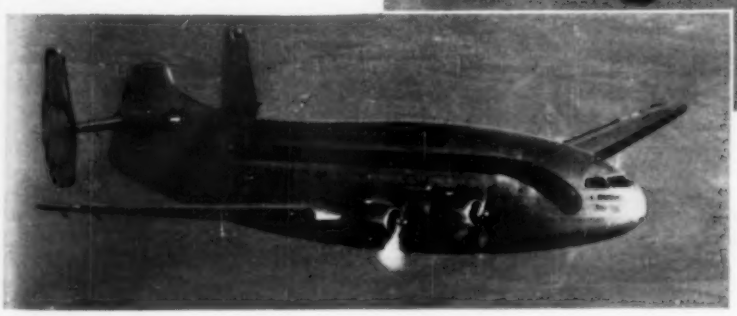
Experimental French two-placer is twin-engined Rey. It is all wood with 40-foot span. Maximum speed is about 200 m.p.h.



Bretagne transport demonstrates versatility by dropping jeep by parachute. French are improving automatic air-drop methods.

New jet pursuit and support plane is SE. 2410 Grognard, powered by two Hispano Nenes, with top speed of over 560 m.p.h. Plane is intended for long-range pursuit, low-level and precision bombing, and aerial reconnaissance work.





Four-engined Breguet 761 is first of a series of 15 now under construction at Villacoublay field.

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I Learned About Flying From That! NO. 138

The Author

No one could find anything wrong with the Wildcat's engine, even though it had been acting up. So the young pilot, afraid to exercise authority, took off anyway.

Two incidents taught this flyer a lesson he'll never forget: The pilot is boss of his own plane.

By DeFOREST WALTON

AFTER FLYING for 11 years I contend that to become an old pilot you must be a slightly imperfect pilot. Such a theory may not sound reasonable. Perhaps it isn't. I have no slide-rule statistics as proof. But I have seen many "perfect" pilots—hot flyers who never got a down check or made their instructors turn purple—who were perfect only until they made that last tragic error.

By "slightly imperfect" I do not mean the bonehead of Frank Adams' cartoons who lands with his wheels up or spins in while flat-hatting his girl friend's house. I am referring to the majority of pilots who are blessed with common sense but who in the process of learning to fly are constantly making minor errors. If you are this type of pilot you are better off than you realize, for, unlike the perfect pilot, you anticipate errors and are ready for an unusual situation, and each experience can teach you something. You can look back and say, "I learned about flying from that."

I learned more about flying from two incidents than from all others. They taught me:

(1) After work has been done on a plane, it must be checked more closely than it ordinarily would be.

(2) In the domain of the airplane the pilot is king.

You've heard that all before? Sure you have. So had I before I had these experiences.

We were flying Grumman *Wildcats* (F4F's) from an auxiliary field near Norfolk, Va. It was between cruises and our Navy squadron was getting our planes ready for another Atlantic run aboard a jeep carrier. We had put rocket installations on the underside of the wings and also had removed the fabric ailerons and covered the underside with thin metal plates to ward off the flash from the fired rockets.

After the change was made by the engineering department at the main base, Norfolk Naval Air Station, I was one of the pilots assigned to fly a modified plane back to our auxiliary field. We were told that when the ailerons had been removed it was, of course, necessary to remove the control cables. And we were warned to check the movement of the controls to see that they had been refastened properly.

I gave the plane a glance but didn't inspect it. I wiggled the stick around a bit before taking off, but this told me little for the controls were always limp until they met air pressure in flight.

I took off and headed straight for the auxiliary field. It was not until I attempted to bank that I noticed anything unusual. Pressure on the stick was sloppy and ineffective. I straightened out with my rudders and looked at the ailerons, which were in neutral position just as they were supposed to be. But when I banked they were still in neutral position; the only thing that enabled me to change direction was my rudder control.

I jockeyed the plane into line with a runway and made a long, fast approach instead of my usual short carrier-type landing. As soon as my wheels touched and the plane had slowed down I looked again at the ailerons. To my horror I saw that they were both drooping! After I had inspected them closely I discovered that the pin which fastened the controls to the (*Continued on page* 41)

Happy Landing at Linden

It's all here! Everything any private or corporation flyer needs in the way of perfect facilities for inbound-outbound New York City air traffic.

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Cities Service Aviation Gasolenes

Cities Service Aero Oils

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Score up Linden Airport as the finest, most conveniently located major air field under private management in the New York City metropolitan area. Linden Airport's complete modern facilities include well-paved runways and 80,000 square feet of heated hangar space.

There's never a landing fee, and you'll find it as convenient as it is economical to store your plane at Linden. Be sure to make Linden Airport your stopover point when visiting in the New York area. Three major bus lines pass the door, plus Pennsylvania rail connections direct to New York.

CITIES SERVICE

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AOPA NEWS

Aircraft Owners and Pilots Association is a service organization for the private pilot or aircraft owner. AOPA's full time staff is devoted to helping the individual pilot. Its aim is: "To make flying more useful, less expensive, safer and more fun."

Headquarters are: 15th and New York Aves., Washington 5, D. C. Members also receive a special AOPA edition of FLYING, newsletters and confidential aviation data. Opinions expressed in this column are not necessarily those of FLYING Magazine.

NEW LIFE INSURANCE

For the first time in the history of aviation, civilian pilots—who are AOPA members—can get life insurance at less than normal rates. As every pilot knows, his present life insurance is almost always affected in one of two ways, as soon as he starts to fly:

1. All his insurance is automatically voided as soon as he flies in any civil aircraft other than a scheduled airliner.
2. His insurance continues in force, but only after he pays a substantial added premium.

AOPA has been trying for years to break that vicious circle because we don't think that reliable civil pilots and plane owners are as bad risks as many insurance companies imply. After much searching and negotiating, AOPA found a well-established life insurance company that is inclined to agree with AOPA about the traditionally "loaded" rates charged people who fly.

It is the Minnesota Mutual Life Insurance Company of St. Paul, Minn., which is 70 years old, is worth nearly $115,000,000 and has $700,000,000 worth of insurance in force. This is the company that insures the personnel of Northwest Airlines under a similar plan.

Under this new group life insurance plan, any active AOPA member now can buy $5,000 worth of life insurance at group life insurance rates. A minimum of 1,000 AOPA members will be needed to start the whole program. No medical examinations are required and won't be until 90 days after the program becomes effective.

The AOPA coverage also gives members special benefits, permanent and total disability protection, and special conversion privileges.

NEW QUARTERS

AOPA general offices are moving to larger quarters in Bethesda, Md., a Washington suburb. New mailing address is P. O. Box 5960, Washington 14, D. C. Telephone number (and members are urged to make long distance calls person-to-person) is Oliver 0500.

An executive office will continue to be located in the Washington Building, Room 410.

TOP AIRMARKER

Mrs. Earl R. Ashelford, wife of an AOPA member, recently won the CAA's national award for getting more cities and towns airmarked than any other person in the United States. Mrs. Ashelford, whose husband operates the Springfield, O., Municipal Airport, persuaded 44 communities in Ohio to paint air markers on prominent buildings. She holds a private pilot's license and has more than 300 hours pilot time.

The CAA's Office of Aviation development awarded her a scroll and the air marking trophy.

MAP RENEWALS

Subscribers to the AOPA Map Service are asked to return the renewal card with their orders or to clearly state that an order is a renewal. If this information isn't submitted, a new set of stencils is cut and the member is likely to receive duplicate charts.

NAVION MOVIE

A technicolor plug for the Ryan *Navion* in the form of a 16-mm sound movie is available from the Ryan Company. The film makes good entertainment for club showings and emphasizes the utility of personal planes in various occupations. The movie can be borrowed from William Wagner, Public Relations Director, Ryan Aeronautical Co., Lindbergh Field, San Diego, Calif.

MINIATURE WINGS

Solid gold AOPA miniature wings measuring 9/16 inches from tip to tip can be ordered from national headquarters.

Relative size of a cigarette and the tiny insignia is shown in the above photograph. Cost of the wings is $3.

FLYING JUDGE

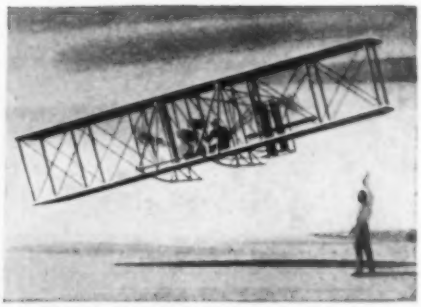
Like many businessmen pilots, Judge John H. Kuns (AOPA 54788), District Judge in Kimball, Neb., relies on his airplane for speedy and practical transportation around his 200-mile district. The jurist has found his airplane a time and energy saver in performance of his judicial duties.

AOPA'S FLYING HAMS

About a year ago, at the request of member Kenneth Richter, AOPA asked members who were also amateur radio operators to send us their names and call letters. AOPA now has 43 flying hams.

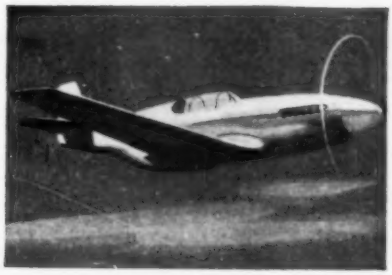
Name	AOPA Number	City, State	Call Letter
Kenneth Richter	49355	Elkins Park, Pa.	W3ETM
Charles C. Wysall	11193	Marion, O.	W8TV
Leon A. Faber	53044	Sandwich, Ill.	W9EH
Jean L. Auxier	8870	Pikeville, Ky.	W4NVR
Frank M. Allen	63329	Denver, Colo.	WØOAD
Kay Paddock	43138	Los Angeles, Calif.	W6NOL
F. L. Gammill	38523	Salinas, Calif.	W6GSQ
E. D. Green	40458	Tampa, Fla.	W4KGF
R. G. Kimball	64616	So. Waterford, Me.	W6OFK
J. A. McGregor	60625	Verona, N. J.	W2RJM
Paul Crowell	13597	Springfield, O.	W8WXG
R. R. Rosenkrans	53744	Waterloo, Ia.	WØMG
L. D. Branson	63197	Casper, Wyo.	W7AMU
Michael Stalmach	33209	Detroit, Mich.	W8YFY
R. H. Kazmierski	66828	Coudersport, Pa.	W3WFK
D. A. Miller	29010	East Hampton, N. Y.	W2MQB
H. E. Parmeter	58181	Mayville, N. D.	WØCGM
V. W. Hodge	14597	Claremont, N. H.	W1ATJ
O. P. Holesousky	13164	Brainard, Neb.	WØLEF
S. T. Cone	59256	Jackson, Miss.	W5JIP
Tom Keenan	12782	Great Falls, Mont.	W7LRO
J. D. Holmbeck	54180	Sandwich, Ill.	W9KZO
R. C. Humphrey	711	Brookville, Pa.	W3PHG
R. O. Barney	60563	Shreveport, La.	W5ISP
R. M. Ellis	45179	Indianapolis, Ind.	W9YSA
Jack Dale	61792	State College, Pa.	W3VPH
Ronald Bryant	25406	Columbus, O.	W8KVV
G. M. Brown	68199	N. Tarrytown, N. Y.	W2CVV
J. T. McHughes, Jr.	55436	Shreveport, La.	W5PUX
J. H. VanArtsdalen	439	Jacobus, Pa.	W3AXA
W. R. Phillips	64247	Boston, Mass.	W4JMB
G. E. Mayer	46708	St. Croix, V. I.	KV4AO
A. D. Sisk	24754	New York, N. Y.	W4NEY
Erik Brorup	63954	Lyngby, Denmark	OZ7EB
James Ross	69589	Pittsfield, Mass.	W1RNC
C. K. Chrismon	71005	Farmville, Va.	W4GWW
L. W. Bergner	62750	Chamberline, S. D.	WØTNU
G. F. Blaich	5367	Poplar Bluff, Mo.	WØLSA
Ken Knackstedt	52563	Medford, Ore.	W7OVO
L. S. Broussard	58484	Galveston, Tex.	W5NBK
V. J. Prunyl	63719	Norwalk, Conn.	W1QCB
D. E. Hoven	69219	Mobridge, S. D.	WØBZH
P. W. Ford	76371	Hollywood, Calif.	W6HFV

FIRST

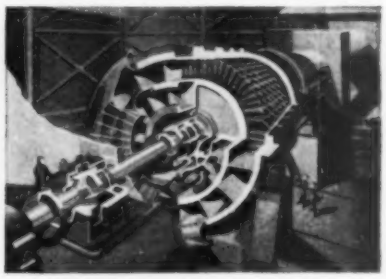


WRIGHT BROTHERS — making history's first successful flight — relied on *Mobiloil!*

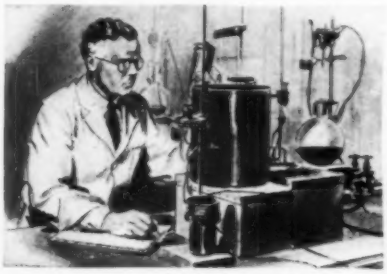
PAN-AMERICAN assures top performance on long overseas flights with *Mobiloil Aero!*



MOBILOIL AERO helped Joe de Bona set record-breaking pace to capture highly prized Bendix Trophy!



WORLD'S LARGEST wind tunnel turbine is protected with lubricants by the makers of Mobiloil!



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MILITARY NEWS

THE WAR IN KOREA

. . . **In the Korean war's** first seven months, only 10 U.S. planes were shot down in combat. Total aircraft losses by the Fifth Air Force up to that time were 223, with accidents accounting for a large percentage of the total.

. . . **Since the outbreak** of hostilities in Korea last summer, the Third Air Rescue squadron's helicopters have saved over 1,000 lives—937 by front-line evacuations and 177 by behind the line pick-ups.

F-80's can take it as well as dish it out. Here Lieut. Donald Streich inspects a jagged hole in the wing of his Shooting Star after returning from a rugged close-support mission.

. . . **After 10,000 hours** of combat flying, the 27th Fighter-Escort Group in Korea claimed five Mig-15's destroyed, one Yak fighter destroyed and nine Mig-15's damaged in air-to-air combat. The group, flying F-84E *Thunderjets*, had lost but four planes—only one of which was the result of air-to-air combat. (See "The Big Rat Race" on page 16.)

FROM OTHER FRONTS

. . . **Canada will produce** North American F-86's at a 20-per-month clip in the Canadair Ltd. plant, says the country's Trade Minister C. D. Howe.

. . . **Air cadets** of the North Atlantic Treaty Powers will be trained in Canada. Twenty-eight RAF cadets and 100 cadets from European countries started training there in January. The number eventually will be raised to 2,000 pilots and navigators.

. . . **All of England's** RAF fighter squadrons are jet-equipped except in the Far East where squadrons are now being re-equipped with jets. The British Navy has five aircraft carriers in active duty and four carriers handling special duties. Six carriers are now under construction.

HERE AT HOME

. . . **Boeing B-47 Stratojet,** capable of carrying an atomic bomb, has been refueled in mid-air by a Boeing KC-97A Stratofreighter tanker plane.

. . . **The B-36D's** four jet engines (General Electric J-47 turbojets) are usually used at four stages in routine flights, during (1) take-off, to reduce run, (2) climb to 10,000 feet, when jets are usually shut off, (3) climb to bombing height as the big bombers near the target, and (4) bombing run. While flying the remainder of the mission, the B-36's four jets ordinarily are not in operation. Greatest portion of most missions is flown on the power of the six Pratt & Whitney Wasp Major engines alone.

. . . **The next two** global bombers may be in production simultaneously, although neither has yet flown. The B-52 (eight-jet, 350,000-pound, larger version of the Boeing B-47) should fly for the first time this fall. The all-jet B-36 (swept-wing version of the 10-engined B-36 global bomber) should fly late this year.

. . . **A 100-foot tower** designed to orient cadets in pilot ejection procedures is used at Williams Air Force Base, Chandler, Ariz. The seated cadet is

fired up the track of the 20°-angle tower by a 37-mm. catapult shell. The force carries the student to a height of 60 feet. Seat and pilot are shot to a 40-m.p.h. start in the first 60 inches of movement. Tower was built by Allis-Chalmers.

. . . **Ejection seat bail-outs** are dangerously delayed by the need to disconnect, one at a time, the many wires and hoses (left) that connect today's fighter pilot to his high-altitude equipment. Now, the Air Materiel Command's Aero Medical

Laboratory has developed a quick disconnect assembly (right) that combines all these leads in a 30-inch rubber cable that separates from the plane automatically when the ejection-seat lever is triggered.

. . . **Most powerful turbojet** engine for which production contract has been let is the new Allison J-35-A-23, scheduled for installation in the Boeing XB-47C

Stratojet. Because of the engine's increased power, only four will be used instead of the six jets now powering the Stratojet. The new "super-jet" (above) has 16 axial stages of compression with a three-stage turbine. Overall length of the engine is 172 inches and diameter is 37 inches.

WHAT THEY SAY

. . . **Ex-President Herbert C. Hoover:** ". . . there is only one real salvation for Europe at the present moment. That is to build up the air and naval power of the United States and Britain so as to overwhelm Russia in case of attack . . . The only way I see to handle such a global situation is an air force of such range that we can reach our targets from air bases more remote than the Continental Pact countries, even from the United States, together with naval power."

. . . **Air Force Secretary** Thomas Finletter, speaking of the twin-jet English Electric Canberra: "The evaluation so far is that it is the best available light bomber."

. . . **Dr. Harold C. Urey,** a top U. S. atomic scientist, when asked how many atom bombs the Soviet Union possesses: "Fifty might be a good guess." Asked if the Russians have a hydrogen bomb, Urey replied: "They are working on it. I don't know what stage it is in."

I Learned About . . .

(*Continued from page 35*)

ailerons had never been replaced.

Since that day I have made a meticulous inspection of any plane that has been worked on—and I have found some mighty strange things. Nothing, however, like the step-ladder a friend of mine claims he once discovered placidly resting inside the wing of his PBY.

My second experience—the one which taught me who was boss of my airplane—happened during some squadron tactics off the coast of San Diego, Calif. Our group of eight F4F's was to take off from the Naval Air Station at North Island, navigate to a jeep carrier 75 miles at sea and make dummy runs on it.

It was a beautiful day and I, the tail-end ensign of the group, was having a wonderful time making steep, swooping dives on the carrier—until the engine of my *Wildcat* began coughing and running rough. I decreased the power and it seemed to run smoother, but just as I thought things were under control it roughed-up again. The division leader called me on the radio to ask why I was not staying in formation. I told him what was wrong and he suggested if my engine was really bad I should make an emergency landing on the carrier.

At that time I had made just eight carrier landings, and those had been aboard the old side-wheeling *Wolverine* on Lake Michigan. This was my first landing on a real sea-going ship. The landing I made was so fast and so bad that I ruined the number three arresting wire.

The ship's engineering chief tied my plane to the hangar deck and ran up the engine. He shut off the switch and got out of the cockpit. "Doesn't seem to be anything wrong with it," he said.

The Air Officer approached me next. "You want to fly your plane back to the beach before dark? You can tag along with a couple of the ship's planes that are taking off in a little while. Otherwise you can stay aboard until we get back to 'Dago in three days."

I had a decision to make. The signal officer was sore at me. The Air Officer probably thought I was chicken and had landed when my engine sputtered a little. The Captain was probably mad because I had loused up the ship's routine. The engineering chief had okayed the plane, and maybe the roughness of the engine *was* my imagination.

I flew the plane back to the Naval Air Station and it didn't miss a beat. But the next day I took off in the same plane and barely got out of the traffic circle before it began to grind. I landed and taxied to the ramp. This time I decided I was right about the engine and I was resolved to find out what was wrong. Our line chief and I took off the oil sump plate and along with the oil came little bits of metal—chunks of piston rings that had been slashing through a cylinder as I flew that 75 miles back to San Diego the day before!

I was a wiser ensign after that, and since that time nobody has ever made decisions for me about my planes. END

VETERANS WITH SKILLS

GET AIR FORCE RATINGS!

Radio repairmen are among hundreds of kinds of skilled specialists . . . men who will keep your United States Air Force winning . . . needed now by your Air Force.

Men with training as former specialists in any service are needed to support America's growing air power. Radio, radar, maintenance, weather, armament, camera repair, and many other technical skills are wanted.

You veterans can now enlist, if qualified, in your old grade or better, skip basic training, and be assigned initially to a nearby Air Force Base. You find out, *before* you enlist, what your grade will be.

For your skill, your Air Force offers better pay and opportunities than ever before . . . in a great Air Force that you will be proud to serve, with a rewarding sense of a job well done in your nation's defense.

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RECRUITING U.S. ARMY U.S. AIR FORCE

U. S. AIR FORCE

NOTES ON CIVIL FLYING

Portable Lights

Joy Manufacturing Company, Pittsburgh, Pa., announces a new line of portable emergency lighting assemblies for airports, runways, hangars and aircraft factories. They are especially designed for outdoor installation.

Gasoline Solution

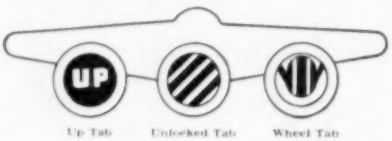
A chemical product called Kemsol, added to both gasoline and oil of his racing planes, was at least partly responsible for the high performance of Cook Cleland's racing airplanes in the National Air Races, Cleland declared just before he was scheduled to return to Navy service. The solution made at 6110 Euclid Avenue, Cleveland, is reported able to insure against sticking valves, vapor lock, pre-ignition, as well as dissolving gum, varnish and sludge.

New Training Center

Northrop Aeronautical Institute, Hawthorne, Calif., has been designated as a training center for Air Force ground personnel.

Easier to Read

New electronic landing gear position indicator has been developed by the Riverside Metal Company, Riverside, N. J.



Instrument has three rotating positions, only one of which is readable at a time. They consist of a face with the letters UP, a face with diagonal red and yellow lines, and a face with a wheel drawing for the down position. The dial registers the position of the gear. The diagonal danger face shows when neither of the two actuating solenoids is energized. The Air Force has ordered the new instruments.

Transcontinental Air Race

New organization known as Transcontinental Handicap Air Race Committee will sponsor a race from New York to Los Angeles beginning July 8. Plane handicaps will be based on advertised cruising speed and overnight stops must be made at 20 designated airports. No planes can fly at night or on instruments. Information can be obtained from the organization at 201 Church Street, Wilmington, N. C.

More Airlines in Wartime

If a military emergency develops, civil air transport will probably be increased instead of reduced as in World War II, according to Delos W. Rentzel. "This is one of the lessons we learned in World War II," Rentzel says. On January 1, scheduled airlines had 1,220 airplanes in service—a gain of 700 in five years.

Crossing the Border

It's easier to fly from Canada to the U.S. these days. Lightplane and nonscheduled aircraft pilots no longer have to notify separately the U.S. Immigration and U.S. Customs services. Instead, pilots file flight plans with the Canadian Department of Transport, which sends the plans to a CAA communications station closest to the airport-of-entry. Then, without charge, CAA notifies U.S. Customs and Customs notifies U.S. Immigration and Naturalization Services. Pilots have only to (1) file a normal visual flight rule or IFR flight plan, (2) include the number of aliens and U.S. citizens aboard, (3) request, under "remarks" on the flight plan, that CAA advise U.S. Customs. First intended landing must be at one of the 33 U.S. airports-of-entry.

Visual Traffic Control

Visual traffic control system has been developed by Sperry Gyroscope Company, particularly for use in airport control zones. The system uses a combination of Distance Measuring Equipment (DME) and Omni-Directional Range stations (ODR). Position and guidance information is presented on an automatic map plotter in the airplane's cockpit.

Women Flyers

Women Flyers of America, Inc., founded in 1940 to train women in all phases of aviation and to promote aeronautics in communities, now has 13 local chapters with new ones being formed. WFA program includes group plan of flight and ground school instruction, mass flights, work with local groups such as girl scouts. Headquarters are in Shelton, Conn.

Norbert Locke, Iowa State Aeronautics director (right), commutes by lightplane to Chicago every Saturday to m.c. children's aviation radio program ("Uncle Ned's Squadron") over Station WMAQ. Here he greets Curtis Fuller, editor of FLYING, on recent show.

Carries Own Airstrip

Portable airstrip is carried along with it by Piper *Cub* on which light track-laying gear has been installed. Gear has been installed in Italy by Count G. Bonmartini, aviation pioneer and inventor.

The gear consists of two four-wheel units, each carrying a continuous rubber track. Take-offs and landings have been made on ploughed fields, ground covered with rocks and intersected by ditches. Tests have been so successful that at least one Italian insurance company will give lower rates on *Cubs* fitted with the gear. Gear illustrated can be fitted to any type of plane weighing up to 2,430 pounds. Development is continuing on similar gear for larger planes. The Bonmartini gear rolls easily and does not reduce performance, the inventor claims.

Pictures Are Better

National Research Council Committee on Aviation Psychology recently completed a study of navigation instruments at the University of Illinois. Report to CAA reveals that aircraft instruments which give a pictorial display enable pilots to navigate far better than do conventional symbolic instruments. Using an instrument which shows the position of the plane as a "picture" along with its destination, 30 pilots flew 407 navigation problems without a single unsuccessful solution. Using conventional instruments, the same pilots flew 439 similar navigation problems with 50 unsuccessful solutions.

Eyesight and Safety

The same NRC committee on aviation psychology has also discovered that pilots who can't meet CAA standards on vision for private pilot certificates learn to fly more slowly but in their later flying have just as good safety records as those who do meet the standards. These findings confirmed other recent studies.

Flying Legislators

Idaho Flying Legislators is organization of legislators who are "aviation enthusiasts with interest in the furtherance of Idaho's aviation development." Organization started in 1947 and by 1951 eight out of 10 legislators were members. Chet Moulton, director of the Idaho Department of Aeronautics, believes group is invaluable in promoting aviation in state. Membership participation includes such things as an aerial jaunt to Sun Valley, demonstrations by Idaho Air National Guard, and so forth.

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"AOPA is great for private pilots. I don't understand how anyone can stay out of your ranks. I am extremely proud of my eleven-year membership and low number, 3682. The map service is really terrific and Max Karant's Newsletter is the most important aviation publication in the country today."

"CLARK DENNIS, Singing star of radio, records and television"

Says veteran member

CLARK DENNIS

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LOGGING TIME

WITH HY SHERIDAN

Captain, American Airlines

IT'S THOSE DECISIONS

Women have a heck of a time deciding where to sit down. They come into my Dizzy Six and they go up the aisle and look at a seat and then they go down the aisle and look at a seat and then they come back up the aisle and look at the seat that they looked at in the first place as though it had changed in the meantime. They shove passengers around and the stewardesses can't get things settled for the departure of the airliner.

Well, one day one of our captains was waiting in the front of the cabin for the baggage men to get through slinging so that he could more or less safely go to the cockpit, and he watched one of these jittery performances and finally he couldn't stand it any longer.

"Madam," he said in a tired voice, "just take any seat. If my plans work out and I have a little luck all the seats will arrive at approximately the same time."

* * *

COCKPIT MUSINGS

We should elect our public officials not so much for what they stand for as for what they won't stand for.

Intelligence has been defined by the psychologists as the capacity to learn. That is nonsense. Intelligence is the capacity to wonder.

Probably the most popular feature about religion is its ability to adapt itself to whatever it is that we wish to do.

* * *

CURTAINS FOR PILOTS

Airline pilots have developed an occupational disease. Their hearts just stop suddenly as though the ignition were turned off.

In the past few weeks there have been several airline pilots who have dropped off with heart failure, and seemingly without any previous symptoms

Now, it's a strange coincidence that there is another profession that is plagued with heart failure, an occupational disease, and the profession is that of medicine.

So many physicians die of heart failure when they are in the prime of life that there must be a cause. There are so many airline pilots dying of the same thing that there must be a cause here, also, because the law of averages won't permit coincidence to explain the trouble.

What do the professions of medicine and of airline flying have in common, if anything? Well, as a class the physician does not get his rest at regular periods. We laymen have the indecency to get sick at odd hours and we yelp for the doctor to come over right away and he gets out of a warm bed muttering to himself and comes to us in a hurry since he wants to keep us alive until he can get the bill in, and so he has to make up a little sleep the next day. His sleeping rhythm is out of kilter. The lack of sleeping rhythm was known to be annoying but it was not thought to be of any importance to health.

Airline pilots live about the same way, especially since the faster airplanes have come along. The CAA will have to modify its rules so that pilots can have some common-sense way of life. The way it is now most of the airline pilots are continually under artificial strain and often dopey from loss of sleep and when they crack up because they were only half there, the CAA will holler, "Pilot error!" The CAA never asks why the pilot was so dull in the cockpit that he couldn't act in a normal manner. They don't ask. Maybe they are afraid of finding out.

So, gentle reader, get your rest at regular intervals. A pilot needs his rhythm with 'im. Your own body has a schedule, you know, and the good Lord is the Time Keeper. If you get your rest and keep on schedule you will have a sporting chance to avoid flopping over with heart failure—until March 15, 1952, that is.

* * *

A KICK IN THE PANTS

Most of you know about ejection seats, the ones that catapult out of a disabled airplane while the pilot is sitting in them. Our jets are so fast that a pilot cannot jump with his parachute in the old way because of the severe air blast, so the brains department dreamed up a solution. When need be, the pilot touches a button and he and his seat are fired out as a unit.

Well, a pilot over Korea had to abandon his jet plane because it had just abandoned him, so he touched the button. By good fortune he landed all right and a jeep came along and picked him up, half frozen and bruised, but alive.

"Who are you?" the driver asked.

"You've heard of flotsam and jetsam?" the disgusted flyer replied. "Well, I'm the jetsam."

* * *

EPITAPH

These mouldy bones did brace the flesh
Of what was once a pilot stern;
Oh, hurried birdman, reft of time—
Pause here, who now has time to burn.

Welcome Traveler

(Continued from page 19)

his fat-bellied *Seabee* plowed to a foamy landing less than 100 yards from the distressed fishermen. To keep his ship from porpoising he set her down tail low, with plenty of power.

But Bartlett's job wasn't half done. Maneuvering a single-engined amphibian in a heavy sea with a 29-mile wind pushing your tail like a flying spinnaker is almost as tough as landing one. And a big danger in any water rescue is that the mercy ship will drift downwind onto the rescuees.

Bartlett, however, had no time to figure problems in set and drift. He taxied his plane to within an arm's length of the nearest fisherman, then kept her there by use of the reversible pitch propeller—a handy thing to have on a seaplane.

While Bartlett sweated at the controls, McDonald threw open the door of the plane and shouted orders to the people in the water. In the best women-and-children-first tradition of shipwrecked sailors, the three fishermen pushed the expectant mother, Mrs. Larseen Hayes, to the door of the plane. McDonald and another water skier reached out and hauled her aboard. Then McDonald tossed four kapok life jackets to the three men and assured them more help was coming. Life jackets are also handy things to have in a seaplane.

With five persons aboard, the *Seabee* was overloaded but Bartlett figured the Civil Aeronautics Administration would overlook a load limit violation under the circumstances. He edged away from the capsized boat, then roared down the lake.

"With a slight overload and with the water breaking over the bow I wasn't sure what to expect," he admitted later. "But to my relief the plane practically jumped out of the water. After a run of about 800 feet we hit a big wave and were airborne."

From that point, Bartlett insists, any credit for the four-ply rescue should be divided among the CAA radio room crew at Chicago's Midway Airport, the Chicago Fire Department and the U. S. Coast Guard.

Bartlett radioed the airport during the 17-mile flight to Meigs Field. He asked them to send an ambulance and notify the Coast Guard. When he landed at Meigs 10 minutes later a Fire Department ambulance was waiting to speed Mrs. Hayes to a hospital. When he got back to Lake Calumet in his *Seabee* 15 minutes after that, with just McDonald aboard, a Coast Guard boat was on the scene.

Bartlett made another billowy landing and again nosed up to the survivors. This time Mrs. Hayes' husband, James, 20, was unconscious. Knocked out by the boat as he sought to cling to it, he was held above water by his companions, Brooks and Hayward Gibson, 22. McDonald pulled Hayes aboard the *Seabee* as the Coast Guard boat arrived to fish Brooks and Gibson out of the water.

Within 45 minutes of Bartlett's snap decision to land on the lake, all four of the half-drowned fishing party were in

warm hospital beds. All of them recovered—and Mrs. Hayes has since become a mother.

The professional skill with which the air-sea rescue was effected amazed most of Bartlett's radio and television fans, who know him as a jovial, 225-pound "housewife's Van Johnson." (Bartlett, who likes baggy sports clothes, often calls himself "a tub of lard in a horse blanket"—a term that doesn't inspire pictures of daring aerial exploits.)

But to many veteran pilots in two countries who know Bartlett as one of the midwest's most experienced pilots, the precision deliverance was no surprise.

Bartlett, owner of two planes, now keeps his *Seabee* in Minnesota as an adjunct to his No. 2 hobby—fishing. He hangars his Cessna at Sky Harbor, near Chicago, and uses it to commute to the North Woods when walleyes are biting.

Last summer he made 17 between-broadcasts weekend trips to Vermillion Bay, Ont. With the two planes he flew an amazing 650 hours in 1950.

He flew in all kinds of weather, too—a stunt made possible by the fact that his Cessna 140 is a veritable flying radio-electronic laboratory. It houses a $2,500 Bill Lear installation, including an omni-scope, a six-channel very high frequency transmitter, an instrument landing system (ILS) localizer and a marker recorder. Tommy, who knows more about wireless communication than most radio stars, flew to Lear's Grand Rapids (Mich.) plant to supervise the installation.

Last August he was cruising at 3,000 feet over upper Manitou Lake, Ont., when he saw a distress signal below—a T-shirt waving frantically at the end of a canoe paddle. He landed to find a panicky 19-year-old boy at the other end of the paddle. After portaging his canoe from lake to lake in that vast wilderness, the boy had no idea where he was.

A mere explanation might have confused him still further; landmarks in the area have such fascinating names as Kahmipiminanikok Lake and Kaministikwia River. Instead Bartlett reached into his voluminous file of section charts and resort pamphlets. He found a spare map on which, with a radio fix, he pinpointed their location. Then he gave the voyager directions to the nearest fishing lodge, some 25 miles distant, and sent him on his way.

Bartlett often plays the "welcome traveler" role with his radio show when travelers he wants to interview are not available in Chicago. In August, 1949, at the request of the Air Force, his entire company flew overseas to entertain American airmen in England, France and Germany.

Last Christmas, paced by Bartlett in his Cessna, the whole show flew to Norfolk, Va., for a special broadcast. From 10,000 nominations submitted by mail a panel of judges picked "the American family that best typifies the Christmas spirit the year around." While the unsuspecting family was at church Christmas morning, Bartlett's producer, Les Lear, moved $6,000 worth of gifts into their home. When they returned from church, bug-eyed with amazement, the show was broadcast from their living room.

For Bartlett, a bachelor, flying is frankly an expensive habit. Last year fuel, maintenance and insurance for the two planes cost him about $4,000. Each seat in his planes is insured for half a million dollars. But as long as his Hooper rating holds up, the rotund radio star plans to stay in the air as well as on it.

His "Welcome Travelers" show alone is a big business. Each day his 26-man staff rounds up some 400 travelers passing through Chicago. They herd them into a Loop hotel for a free, light breakfast, then question them to screen out persons for interviews on the air.

"We're the only ad lib show in radio that uses 80 pages of script for each broadcast," Bartlett says, commenting on the elaborate preparations.

The result, however, seems to please soap sponsors as well as the housewives who listen to Tommy over the clatter of breakfast dishes.

Not long ago a lady listener in Michigan—a woman he had never seen—willed Bartlett $5,000. More recently Chicago's Mayor Martin Kennelly issued a proclamation naming the big ex-Milwaukeean as Chicago's official greeter.

"As long as I can't meet everyone who comes here," his honor said, "I'm certainly glad to have such a fine man as Bartlett doing the job." END

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CIVIL AIR PATROL

WING TALK

A Global Movement

HOW WOULD YOU like a free, two-week vacation in Switzerland? With free air transportation both ways, of course. Or perhaps you prefer Italy or France? If not, how about Canada, Sweden, Denmark, Luxembourg, Spain, Portugal, Brazil or Mexico? Some 150 young men in the Civil Air Patrol are going to get such trips this summer, for these are the countries that will participate in CAP's big International Cadet Exchange for 1951.

National Headquarters has announced that probably more than 150 cadets will be able to visit a foreign country during August and all CAP Wings are selecting their outstanding cadets as candidates. Only male cadets between the ages of 15 through 17 are eligible. They must have a minimum of 12 months service in CAP, during which time they must have attended at least one encampment, and they must know how to drill properly.

But that's only the beginning. This year, a standardized method of selection has been developed by National Headquarters which all Wings are required to follow. Here, briefly, is how it works.

Squadron and Flight Commanders may select one candidate for the program. His name is forwarded to Wing Headquarters with a letter from his CO telling why he was selected above all other eligible cadets in his unit. At the same time, the cadet's parents must sign a statement authorizing the cadet to travel outside the continental United States and over water by military aircraft, should he be selected. His CO must also certify that the cadet is competent in military drill.

After this information is received by the Wing, the Wing Commander contacts the nominee's school principal and clergyman for further information about his qualifications.

Next step for the Squadron and Unit nominees, if they get by the initial screening, is a personal appearance before the Wing Cadet Selection Board which is made up of the Wing CO, Commandant of Cadets, Wing Chaplain, and two outstanding citizens qualified in youth leadership, or two other CAP officers. Prior to the appearance, the nominees are guests at a dinner or luncheon, and other social functions, if possible, where senior personnel take note of such qualities as appearance and social deportment. Nominees are expected to be able to handle a teacup as well as a spark plug wrench.

Then comes a private meeting with the Board at which time the final evaluations are made on the basis of appearance, attitude, tact, moral character, scholastic ability, knowledge of aviation, knowledge of Civil Air Patrol, leadership, and social etiquette.

First, second and third choices are sent to National Headquarters for final screening and selection. Cadets who have previously participated in any cadet exchange are not eligible.

New Judge

JOHN A. TONDRA, president of the White House News Photographers' Association, has been named as a judge for the FLYING-CAP Photo Contest which began April 1. He is replacing *Saturday Evening Post* photographer Ollie Atkins who has left on an assignment to Korea.

Drilling for Honors

NATIONAL Headquarters, CAP, has announced that the 1951 Drill Competition between CAP's national champions and the Air Cadet League of Canada will be held August 28 at Toronto during the Canadian National Exposition. Begun in 1948, these drill team meetings are a major event in the CAP cadet program and a perpetual trophy (the Maj. Gen. Lucas V. Beau International Challenge Trophy) is presented to the winner each year by CAP's National Commander. The Canadians took the trophy home with them in 1948 and have successfully defended it every year since then.

Intra-Wing and Regional meets are underway now. Regional winners will challenge Utah Wing, defending national champions, during the national competition where the prizes are the Col. George Stone Memorial Trophy and the honor of representing the United States in the contest with Canada. A site and date for the national competition had not been announced up to the time FLYING went to press.

New rules and regulations governing the drill meets have been announced by the Drill Competition Committee, headed by Col. George Hayman of New York City.

Drill teams must consist of three squads of 11 cadets and one cadet commander to act as drill master. Members must not have reached their 18th birthday prior to April 1, 1951, although cadets reaching their 18th birthday between April 1 and September 1 may remain as team members if they were selected before they reached their 18th birthday.

Female teams are eligible for Wing, Regional and National meets, but not for the International Meet because Canada is not entering a female team. In case the gals win the National Meet, the Drill Competition Committee will select the runner-up team of male cadets for the Canada meet.

Colonel Nolde

ONE OF AMERICA'S most prominent women flyers, 1948 winner of the Jacqueline Cochran Transcontinental Race and a veteran of more than 4,000 hours in the air, has been appointed Advisor to the National Commander for CAP Women's Activities and promoted to the rank of colonel. She is Mrs. Frances Nolde of Reading, Pa., who leaves her position of Public Information Officer of the Pennsylvania Wing to take over her new assignment.

Colonel Nolde will devote most of her time to working with girl members of the CAP Cadet Corps.

National Board Meeting

CAP's NATIONAL BOARD will meet this month at the Broadmoor Hotel in Colorado Springs. The meeting, scheduled for June 7-9, will bring together the National Executive Board, the Wing Commanders, Advisors to the National Commander, and the National Commander and his staff. The meeting will take the place of the annual banquet, called off this year because of the hostilities in Korea. Main topic for discussion will be the role of CAP in civil defense.

San Juan cadets of the Civil Air Patrol's Puerto Rico Wing pass smartly in review during a recent ceremony on the island.

Must Plane be a Car?

(*Continued from page 32*)

distances that alone make today's airplane a super efficient vehicle.

Enthusiasts have looked toward the day when the airplane would be as popular as the automobile, but today in this country there is only one civil airplane for each 500 cars. Since this is so, we need to face the facts and act accordingly.

The greatest survey of personal travel habits ever undertaken was conducted by the Bureau of Public Roads just before World War II. It was conducted to learn how people used their automobiles. And it discovered that the overwhelming majority of automobile mileage is driven on short trips.

In the 11 states the Bureau reported on in its study, "Toll Roads and Free Roads," the average trip varied from 11.7 miles to 18.7 miles. Most trips were less than 10 miles.

More important, in the state with the highest average, only 2.3 per cent of all trips were over 100 miles, while in the state with the lowest average only 0.7 per cent were over 100 miles.

These findings hold for both city and country—in fact, the average trips of passenger cars owned in rural areas were shorter than the trips of cars owned in cities.

I believe that these findings of automobile travel habits have direct validity for the personal aircraft industry. The conditions under which the automobile is used predominantly are such as virtually to preclude the use of the airplane as a substitute.

The airplane generally cannot be used economically to travel distances of under 100 miles. By the time the pilot has driven to the airport (in a car), rented and taxied out his plane, warmed it up, and taken to the air, his counterpart in an automobile has practically arrived at his destination.

Yet only from 0.7 to 2.3 per cent of automobile trips are as long as 100 miles!

How many of today's automobile owners can also afford to own an airplane for use on from 0.7 to 2.3 per cent of their trips?

It will be possible to argue that in covered wagon days not many people traveled across the country either, and that the airplane will generate its own traffic. On the other hand, no one would choose to argue that 30 miles exceeds the utility of the automobile—yet 90 per cent of all automobile trips are less than 30 miles in length.

In other words, people have no reason to travel farther than 30 miles on nine out of every 10 of their motor car trips. By the same token, they would have no reason to use an airplane for nine out of 10 of their trips—or for that matter for 98 out of 100 of their trips. That fact considers distance only and makes no allowance for poor weather or the unavailability of airports at destination.

The inevitable conclusion of this study must be that private plane ownership is not for the average automobile owner nor for 98 per cent of automobile owners. The automobile user wants a vehicle that can deposit his wife and kids at school or church or Aunt Minnie's, with a stopover at the corner grocery.

One of the bitterest criticisms of one school of self-appointed critics of the lightplane industry is that the airplane cannot do all these things. Underlying their complaints against the manufacturer is their conviction that it ought to be able to do them, and maybe help with the dishes in the evenings too. They seem unable to forgive designers because they haven't produced an airplane which can do everything an automobile can do, and fly superbly as well.

One point that the highway planning surveys proved, much to everyone's surprise, is that there is relatively little transcontinental automobile travel.

The most careful traffic counts indicated that the total average daily number of passenger cars traveling between all points in the three Pacific Coast states and all states east of Idaho, Nevada and Arizona was only 2,532. The sum of the number of cars bound to or from points in states bordering on the Atlantic Coast was only 300 per day. These facts are emphasized only to illustrate that long range travel by private vehicles is much less than commonly supposed.

The solution to the airplane problem is contained in just such an analysis, and it is two-fold.

First, expand the use of private planes among those persons who do travel long distances. This will give a considerable boost to the airplane as it exists today.

Second, create a short-range airplane.

For the first solution, even if we assume that airplanes can be used economically only by two per cent of automobile owners, that two per cent represents an enormous potential.

If personal airplanes were bought by only one per cent of car owners, that would mean a five-fold increase over the number flying today and an annual production rate of about 50,000 airplanes per year! Most of the people in aviation would be satisfied with the promise of a half million airplanes in the next five or 10 years, and if the airplane were used by one half the people who could use them profitably, that is not an unreasonable goal.

For the second solution, slow-landing planes like the *Helioplane* offer one possibility. The *Helioplane* is capable of landing over a 50-foot obstacle on a 300-foot strip. Even so, it is difficult to imagine it meeting the requirements for a vehicle to travel short trips anywhere except in open rural areas.

The ultimate answer must be a roadable airplane, or better, a flying automobile. It must be as efficient as an automobile for short trips and as efficient as an airplane for long trips.

Most engineers, despite the relative success of Bill Stout, Robert Fulton, Convair engineers, and *Aerocar* developers, hold that an efficient flying automobile is impossible. Perhaps. But if it could be developed, what a field would unfold for the aviation industry. And unless it can, it is folly to compare the airplane with the motor car. END

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Check one ☐ Veteran ☐ Non-Veteran 1-6

BETTY SKELTON'S NOTEBOOK

Necessary Stop-Over

A lady with her seven-year-old son rushed into the Peter O. Knight Air Port Tampa office and asked for an immediate charter trip. Flight instructor BILL CRAVEN took the trip and, after several hours in flight, noticed the boy squirming and fidgeting. The lady finally asked Bill if he'd mind landing at the next airport. "Sure," Bill replied, "I know how it is . . . I have a couple of kids of my own." Mission accomplished and back in flight, the lady turned to her son and said, "Richard, don't you think you ought to thank the nice pilot for being so kind to you?" "Thank you, mister pilot," Richard said dutifully. Then he looked at his mother: "Mama, don't you think *you* ought to thank the pilot? You went too."

The Professor

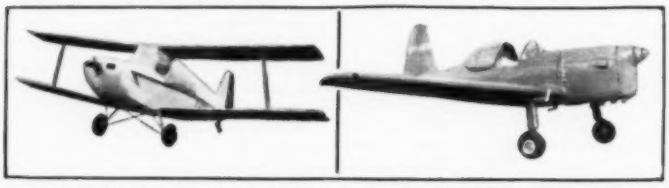
Do you know this man? He's a famous race pilot . . . a designer, engineer and builder of special aircraft. Also a well-known inventor—a popular lightplane is equipped with one of his devices. One more clue—he attended the International Aircraft Show in Belgium last year. If you're stumped, the answer is on page 60.

Outside Loops

Some info on outside loops comes from M/Sgt. CLIFFORD L. FRAIZER, stationed at Quantico, Va. Clifford writes that "in the early 30's PAUL MANTZ set a record of 46 consecutive outside loops in a Kinner *Fleet*. This record was later broken by the late TEX RANKIN with 156 outside loops in a Great Lakes. DOROTHY HESTER set or broke the record for women with 96 in a Great Lakes."

Foreign Jobs

CHARLES W. CAIN of London has sent me photographs of two interesting foreign planes. The La Petite Puanteure (below, left)



is a French two-seat bipe with a 22 ft. 11½ in. span and weight of 1,190 pounds. It's powered by a 65-h.p. Continental and has a top speed of 112 m.p.h. The other plane (right) is a sweet Danish acrobatic singleseater of wood, with a 23 ft. 7 in. span and weight of 1,265 pounds. With a 145-h.p. *Gypsy Major* inline engine, it has a top speed of 171 m.p.h.

Watch Out

The Tampa (Fla.) Police Department now boasts a Flying Police Force. Ten energetic young cops decided to take flying, some on the GI Bill, and they all came out with flying colors, received their private licenses, and now have a "squadron" of their own.

So if you're in the vicinity of Tampa and spot a neat lightplane formation, watch out—in the air or on the ground—they've got you covered!

Squirmy

To thrill all the gals was Squirmy's delight.
His favorite gal he took for a flight;
Completing the roll he remembered too late
He'd forgotten to fasten the belt of his date.

Betty Skelton

Planes We Didn't Have

(*Continued from page 22*)

of "ground effect"—a phenomenon which allows a plane to fly several feet above the ground but prevents it from climbing. The PG-1 had an official absolute ceiling of 50 feet!

The PG-2 was powered by two 200 h.p. Ranger engines (housed in Grumman *Widgeon* engine nacelles) slung under each of the wings as self-contained power packs. This version of the craft was considered by most of the experts to be relatively successful and was flown on many occasions at Wright Field. In fact it was assigned to the so-called "mail-run" between Wright Field and the Wilmington Glider Base some 20 miles away. It carried high priority junk and idle personnel back and forth with a strong suspicion that everyone went along just for the hell of it. Capt. Adam Stoltzenburger flew it many times using Wright Field's inclined runway—more for fun than necessity since the craft actually got off fairly well even with a full load aboard. But it was slow—and low. Pilots who flew it compared it to a ride in the nose of an elevated train as it skimmed down the highway at 100 m.p.h. and 60 feet above the ground. At any event, the general enthusiasm was such that 10 PG-2A's were built by the Northwest Aeronautical Company.

Flushed with this success the next step was inevitable—add more power and clip the wings. Make a hot-rod out of it. This was the PG-3 built by Waco. The power was jumped to two 325-h.p. Jacobs engines in nacelles unbolted from a Cessna C-78 *Bobcat*. This combination was a sad disappointment, I understand, although some engineers claim that it was a slight improvement. However, since it was now early 1945 further attempts to convince the innocent CG-4A that it was a full-fledged powered airplane were dropped in the general scramble to wind up the war.

However, the ball was immediately picked up by Mike Stroukoff and the Chase Aircraft Company who had designed and built the all-wood XCG-14 in 1944 and the wood and metal XCG-14A in 1945. These were pure gliders but Chase picked up speed when several Wright Field project engineers took off their uniforms, donned tweeds and joined Chase. In late 1947 the XG-18 came out as an all-metal glider but was designed to be easily converted to a powered assault plane by the addition of two power packs slung under the wing. The wing structure of the new all-metal glider was already designed to carry the power packs.

When powered and grossing 35,000 pounds the XG-18 is known as the C-122 with two Wright R-1820 engines rated at 1,475 h.p. each. Ten of these powered versions are in existence. These are the first assault planes designed and built from scratch for the Army and Air Force.

Chase paralleled the development of the G-18 with the XG-20—a much larger glider of all-metal construction and with a tricycle gear. It too was designed to

carry power packs under the wing and is now known as the XC-123. The first and only one built won the Eglin Air Proving Ground tests last fall.

The XC-123 weighs 25,000 pounds empty and grosses 55,000 pounds at take-off. It carries two P. & W. R-2800 engines rated at 2,100 h.p. and can carry 60 troops or 50 litter patients. It's therefore almost twice as large as a C-47 or a DC-3 weightwise, has 15 feet more span and almost twice the power. In fact the smaller C-122 compares directly in weight, size and power with the C-47 while the XC-123 compares directly with the C-82—but not in performance.

Both Chase assault planes are said to have phenomenal take-off performance in comparison with standard transports of the same gross weight and power. For example, a C-47 with 2,400 h.p. takes at least 2,200 feet to break ground lugging its top weight of 33,000 pounds. However, advocates of the C-122 swear it gets its 35,000 pounds off in less than 1,000 feet on 2,800 h.p. The C-47 then takes 4,000 feet to get 50 feet in the air while the C-122 is said to do this in less than 1,500 feet.

The big XC-123 is also said to be light on its feet in climbing out of the small unprepared areas for which it was designed. Its companion C-82 takes slightly over 3,000 feet to lift its 54,000 pounds off with a total of 4,200 h.p. but the XC-123 is said to do this on the same power in about 1,000 feet. It shows what specialized design can do over a general-purpose transport.

Northrop's C-125 *Raider* lies somewhat in between the C-122 (and C-47) and the XC-123 (and C-82) in size, weight and performance. The C-125 is powered with three 1,200 h.p. P. & W. R-1820 engines instead of two 1,200 R-1830's for the C-47. This gives it 3,600 h.p.—600 h.p. less than the 4,200 for the C-82 and XC-123. Its weight also lies in between—at about 40,000 pounds as compared with 35,000 pounds for the C-122 and 55,000 for the XC-123. Its take-off is understood to be about 2,000 feet ground run and perhaps 3,000 feet for the 50-foot jump. It loads from the rear with a lowered ramp just as the C-122 and XC-123.

The reason for excellent performance, as reported, of the Chase designs is difficult to account for. In fact, it at first appears that the quoted performance would lie about one inch in mid-air to the right end of the slide-rule when the performance is computed by standard rules. But Chase says the wing design of both the C-122 and XC-123 enable them to match their performance claims.

Michael Stroukoff, Chase Aircraft president and chief engineer, whose talents range so far as to include building the Ziegfield Theater in New York, designs his own wing sections—the "MS" series for all his aircraft. It's believed next to impossible to carve out a curve that isn't listed by the NACA in the voluminous catalogues of wing sections, yet it may be that some heretofore overlooked wing shapes have certain advantages when used on low speed gliders.

At any event, assault planes are here to stay and many more Chase *Avitrucs* will be seen in the coming years as America rearms to build the best—in event of the worst. END

Big Rat Race

(*Continued from page* 17)

its run when the Migs appeared. They had taken off from the Antung airstrip in Manchuria, within a stone's throw of Sinuiju. Our pilots saw them taking off. But it was Lieut. Jacob Kratt of South Milwaukee, Wis., who first called them out. Then, as each flight pulled up and climbed for altitude, the big rat race began.

The enemy tactic was to strike if possible, dive across the Yalu river into Manchuria, climb for altitude again, and sweep back across into Korea.

It didn't all work out as neatly as they had planned it.

Here's the story in the words of the pilots who took part.

Jake Kratt was flying top cover. He told me: "I saw the Migs coming up the Yalu river from Antung on the Manchurian side of the border. As soon as we saw them hit the Korean side of the river we peeled off. They were below us at about 3,000 or 4,000 feet. We were at 12,000 to 14,000 and rolled over and came right down at them. I got in a good long burst at the number two man. As soon as he was hit, smoke poured out and he turned toward Manchuria. So did his section leader.

"We then broke off. Later I spotted a Mig chasing one of our planes. They were in a 20° dive and turning. I peeled off and went down, firing while making a high sidepass. I closed in and got on his tail and gave him a two-and-a-half second burst. The hits went in his tail pipe and rudder. I got pretty close by then—so I had to break off."

About this time Capt. Allen G. McGuire of Clarksville, Tex., was leading his flight in a strafing run. He had Capt. Billy Eden of Tyronza, Ark., on one side, Capt. William Slaughter of Lexington, Ky., on the other.

McGuire said: "After Kratt called, Slaughter, Eden and I swept around after our run. The air battle by then looked like a mixmaster or a swarm of bees. We made a turn taking us straight in over the field. Slaughter and Eden could hardly wait, calling out 'there it is . . . there they are.' We could see 10 or 15 planes all going up and around. One came out right toward us. He was going south from the border, then made a 90° left turn to the east. We were going north. I made a turn and started firing short bursts at long range. Capt. Eden said he had me covered from the rear. Then he called that Migs were coming up from six o'clock and said: 'I'm going to have to leave in just a minute.' Then about three seconds later, 'I'm gone.'

"The Mig I was following went from about 14,000 to 12,000 feet in a gradual

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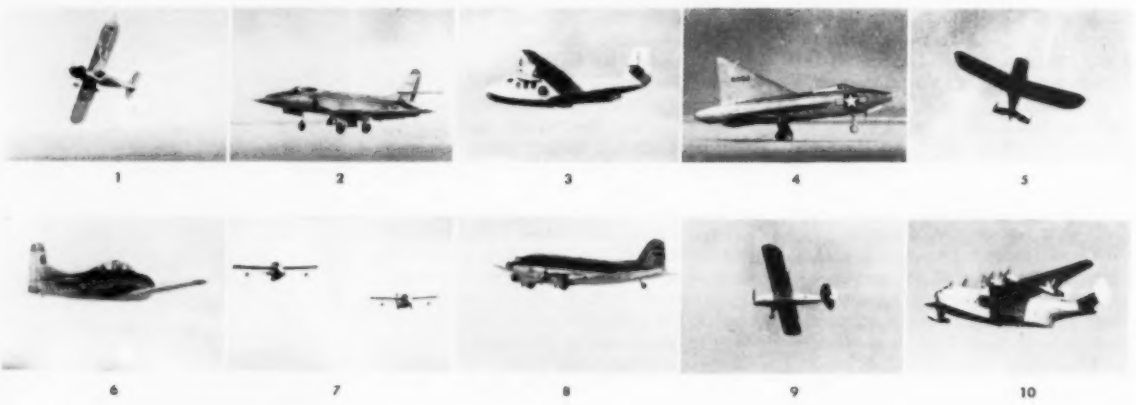

1 2 3 4 5

6 7 8 9 10

(1) Pulton Airphibian (U.S.), (2) Lockheed F-90 (U.S.), (3) Short Sealand I (Great Britain), (4) Convair XF-92A (U.S.), (5) Ercoupe (U.S.), (6) Fairchild T-25 (U.S.), (7) Republic Seabee (U.S.), (8) Douglas DC-3 (U.S.), (9) Auster A.O.P. Mk. 6 (Great Britain), (10) Martin JRM-2 Mars (U.S.).

dive. I closed but got low on ammo. I saw some pieces break off. He started smoking. I made a turn to the right as he turned to the left. I didn't see him any more."

Capt. Eden said: "After we made the run over the field and started back to where the fight was in progress I called to McGuire, 'You're clear here, go ahead and shoot. We've got you covered.' Then I saw a couple coming in from 6 o'clock. I called Mac and said, 'We can't stay with you much longer.' Then a few seconds later I said, 'Say Mac, I gotta go now.' I broke left. Capt. Slaughter broke to his right and got onto the tail of the Mig that had been shooting at me.

"I covered Slaughter's tail and while doing this went down to about 2,000 feet to watch his Mig hit. I wanted to see it burst but about that time some joker was shooting at me, putting 20-mm. over the top of the canopy. I pulled around and saw a lot more in the air at about 12,000 or 15,000 feet. I climbed back into the mess and tried to latch onto one, but they'd come in and shoot at me from the rear and head on. Then a Mig would level off in front of me but I couldn't level off to hit him without getting shot.

"I watched one Mig go down in flames, then realized that someone had shot it down. I wanted to get a picture to confirm it for whoever had made the kill but while in the dive I got into compressibility. I couldn't move the stick. It was frozen and went over to the right side of the cockpit. I had the throttle all the way back. I finally hit the dive brake toggle switch and immediately blacked out. When I came to I was going straight up. I rolled over and saw the Mig hitting the ground. I must have been at about 7,000 feet then. I counted at least six or eight Migs. There had to be that many. They were coming in at me too fast for there to be less. All this happened in 10 or 15 minutes. Then everyone began calling they were going to the rendezvous point—heading for home. I called for the boys to come on back up, that I had six or eight hemmed up and would let 'em out one at a time. Several asked where I was. I said, 'Just look up. You can't miss me.'

"I was turning left at this time. There was a Mig coming in from the rear and another making a head-on pass. Cannon-fire tracers were coming at me like golf balls but when you're alone they look like basketballs. At the same moment another Mig came in from above, slicing down on me, but he overshot and flipped back to my right. I immediately flipped back to the right putting him almost in my line of fire but I was too close to shoot. He was only about 50 feet away and nearly on top of me. He realized then that I was in back but below him, so he flipped back to his left, which put him still above me and close. So I chopped my throttle and dropped the speed brake to slow up. Evidently he was doing the same thing.

"That went on for nearly 15 seconds with him on top and both of us passing back and forth. Every time he would cross on top and a little in front I would shoot at him. After a few moments he levelled off. I flipped over again and got right on his tail and started to open up but some golf balls started coming over my canopy. I figured there was another Mig behind me, so I broke and went into a Luffberry. Then I yelled for help saying this time I'm the one that's hemmed in.

"I kept up the Luffberry maneuver and whenever I faced south I'd level out for a few seconds and fly straight to carry my circling point away from the border. I finally broke out of the circle and made steep right and left turns, heading southward. I got down to about 9,000 feet. The Migs turned and went home. I was too far south then for their radius of action. But my radio compass was out. The weather around the base was bad so I called up Captain Slaughter and asked him to wait for me at the 'big city'—Seoul. He did, and went back to base with me."

Slaughter was flying opposite Eden on the other wing of Flight Leader McGuire. He said: "When Bill Eden called 'Take them off of me, Bill,' I turned into them as Eden turned into me to clear the Mig from my tail. One of the two did a Split S away. I picked up the other doing a slower split S. Bill said, 'Go get him, boy. I've got you covered.'

"I was at long range and closing so slowly I was afraid he'd get away. I pulled up over and got in some short bursts which seemed to slow him up. Then I gave him a long burst and he seemed to stop in the air. I chopped my engine off to keep behind. We were down then to within 1,500 or 1,000 feet of the ground. Then I saw shots going over my shoulder so broke off and hit the deck. I stayed among the trees for awhile, then headed for home. Then I heard Eden call: 'I got eight of them cornered up here. Come on back, I'll let them out one at a time for you.'"

The pilots didn't help Eden because they couldn't find him in the melee that was in progress and they were all getting low on fuel. Eden says he finally told them he would be out shortly, which he was. Strangely enough, not a single F-84 was struck by the enemy. Capt. Slaughter says he was impressed by the ability of the enemy pilots. They were more aggressive than before. Usually they attack with the sun at their backs, coming in on the UN planes in two-ship elements. But in this, the largest jet air battle of history, the enemy jet fighters were all split up.

The final intelligence report gave:

Lieut. Kratt—two Migs

Capt. McGuire—one Mig probably destroyed

Capt. Slaughter—one Mig destroyed.

It is estimated that there were possibly 28 Migs in the battle. END

Cat in the South Seas

(*Continued from page 27*)

if you forget the rest except, of course, the mail.

The cargo yesterday ranged through rifles, bunches of bananas and other tropical fruits, crates of stores, cameras, a radio set, baskets, hats, a pressure kerosene lamp and dogs in a box. If the passengers had found themselves cheek-by-jowl with a hippopotamus they probably wouldn't have been more than mildly critical.

Near Moresby we flew over coastal plains with swamps and winding rivers, some of them quite broad. The sea was leaden, the early morning air hazy, vaguely obscuring the vast Owen Stanley Mountains that rose to 13,000 feet inland. We flew over an oil-drilling rig in flat-hilled land, and over copra plantations right on the coast. About half an hour out we came down at lovely Yule Island, the site of a government station and Catholic mission.

Another half hour's flight brought us to Kerema, site of another government station and a center for copra, cocoa and rubber plantations. From Kerema we flew over the Delta country with its winding, crocodile-infested rivers.

We use a flying boat in this service for obvious reasons. Rainfalls are as high as 300 inches a year, making it difficult to maintain airstrips even if you can build them in swamp and jungle. The broad rivers and estuaries are ideal for flying boats. But swift muddy waters can carry hidden hazards. Rivers like the Vailala and Kikori, both in the delta division, often have logs floating down them.

At Kikori yesterday we picked up about 4,000 pounds of cargo for Lake Kutubu, 90 miles inland to the northeast. To get there we flew at 7,000 feet over "broken bottle" country—a series of great limestone ridges from 2,000 to 4,000 feet high. The blue volcanic peak of Mount Bosavi was cloaked in clouds to our west. Below us were Beaver's Falls which tumble vertically for over 300 feet. The flight from Kikori took about 45 minutes. To walk overland takes at least 56 days.

Lake Kutubu wasn't discovered until 1936. Without the *Cat*, maintenance of a government station here would be impossible. The lake is 11 miles long, one and a half to two miles wide, 400 feet deep and 2,600 feet above sea level. Mountains and jungle end right at the lake's edge. This is some of the world's most inaccessible country.

During the following 90-minute flight we crossed the limestone country again, much of it never penetrated by white men on foot. Some tribes in the area are still cannibals. Others collect dried human hands and human heads stuffed with mud.

We arrived at Lake Murray in the valley of the mighty Fly River, 200 miles inland and only 12 miles from the Dutch New Guinea border. Here an Assistant District Officer and Patrol Officer are the only two men within 100 miles. If it weren't for the *Cat* these two would have

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Flying Farmers, U.S.A.

PLANES BUILD FAIR CROWDS

Farmers have long regarded a trip to "the fair" as a business proposition, largely because of the educational features. Last fall Illinois county and state fairs went all out in bidding for flying farmer attendance. In spite of bad flying conditions on most flying farmer days more than 1,200 FF's used their planes to attend a fair they probably would never have attended had they been forced to use a slower and less inviting means of transportation.

★ ★ ★

SERVICE AND UTILITY

Recently we asked rank and file flying farmers scattered throughout the nation: "What one thing does private flying need more than anything else?"

We were a little surprised when not one of our two dozen correspondents said "cheaper airplanes."

Instead of repeating the chorus we were hearing just a few short years back, everyone went down the line asking for better service and more utility.

J. C. Davis, Carthage, Miss., replied, "more landing strips and more gas tanks." Davis continued, "The airplane for private flying in Mississippi is today where the automobile was for private driving in 1917." Davis explained that in 1917 he drove a model T from Laurel, Miss., to Jackson, Miss., finding that gas was all but impossible to obtain in the 150 mile trip.

Howard Hewett of Beaver City, Nebr., answered with one big word *service*. Hewett says the passing away of shops on the small airport is working a great hardship on flying farmers in his area. "Most of us," he concludes, "are two or three hundred miles away from shops with facilities, parts and mechanics necessary to good service."

★ ★ ★

FLYING ESTANCIEROS

Our comment about flying in Bolivia (April FLYING) brought an interesting response from Jose Benchimol of the Argentine Publishing Company. Jose points out that there are flying farmers in many countries of the Western Hemisphere.

"In Argentina," he says, "most of the ranches or "estancias' have nice landing strips, with many of the 'estancieros' owning planes, the most popular being the Piper *Cub*."

It seems, according to our correspondent, that the airplane is the hope of many farmers living in the rather desolate section of Paraguay, Brazil and Uruguay. "Many ranchers in these sections," he concludes, "are buying good flying equipment from the U.S.A."

★ ★ ★

AN AMAZING FAMILY

Is there another Flying Farmer family that can top this? The nine Wilkens of Kansas (pictured below with their wives) constitute the entire male generation of the Wilkens family —and all are private pilots. Members of the Kansas Flying Farmers, the Wilkens use their planes almost every day and most of them have private landing strips. How's this for an aviation-minded family?

The Flying Wilkens, from left to right, standing and seated: Donald and Margaret, Harlan and Norma Lee, J.C. and Midge, Theodore and Thelma, Lloyd and Doris, Clarence and Helen, Art and Ottilie, Harold and Ruth, Kenneth and Louise. Eight of the men are brothers or cousins. Art is an uncle to seven of the men and father of J.C.—the only father-son combination in the group.

to travel 500 miles by water for supplies.

This is just one trip—a few thousand miles of the 120,000 miles we fly each year in the romantic South Seas.

The island of Kiriwina in the Trobriands group, north of the eastern tip of New Guinea, is often called the "Island of Beautiful Women." The women here don't have the coarseness of features found among other native women in the area. Their hair is lustrous and wavy, and their carriage and figures are something you write home about. The trip to Kiriwina from Port Moresby and return is a two-day excursion to regions where romantic novels of the unspoiled South Seas might well be laid.

We leave Port Moresby about 9 o'clock on Wednesday morning. On this trip we have a full complement of passengers, including a European woman with a baby. Sitting incongruously opposite her is a grass-skirted native woman suckling a child. Among the men are planters, administration officials, a missionary and several natives.

About an hour out from Moresby we set down at Abau for a shipment of copra and rubber from nearby plantations. A few buildings surrounded by coconut trees sit back on the shore. A double canoe decked with flooring and bearing an empty chair puts out from the short pier and our woman passenger with baby departs for her plantation home, traveling in primitive state like an island queen.

We take off for Samarai, a settlement completely covering a small island with a circumference of about a mile. You can stroll entirely around the island in about 20 minutes. Before the war, Samarai was a renowned beauty spot. During the war, the island was a base for the U. S. Black Cat Squadron (*Catalinas*) and as such got a certain amount of attention from the Japanese who put a bit of a dent in the scenery. But these scars are healing quickly.

An hour's stay gives us time to look around and the *Cat* time to refuel from a launch carrying 44-gallon drums. We now head for Ess'ala on Fergusson Island, crossing the eastern tip of New Guinea and passing Normanby Island. Ess'ala's extinct volcano is about half a mile from the port and its slopes are steep and green. The water in the harbor is incredibly blue, almost purple. Native canoes that come out to the *Cat* are beautifully constructed, carved and painted.

From Ess'ala we head almost due north to Kitava and Kiriwina. Kitava is no stopping place but we drop stores for the island's one European inhabitant, "Cameron, the King of Kitava," one of the many colorful characters in these parts. He is a Tasmanian who settled on the island years ago and grows copra. About all that may be safely said about him is that he lives alone with his native helpers, is unconventional and is apparently content with his primitive companions. He seldom appears in a white settlement.

To drop supplies to Cameron, we throw open the blister and with one of the Cat crew I stand by, headphones on, waiting for the signal from the pilot. A yell, we

heave the bag into the howling slipstream and close the blister.

Kiriwina is only a few minutes' run from Kitava. We fly over the flat green island (highest point, 800 feet) veined by native roads between lines of coconut trees and come down on an open stretch of calm water near a pier.

The younger women of Kiriwina are certainly among the most attractive to be seen anywhere among the native people of the South Seas and much of their charm comes from the island's isolation.

Scattered among the native houses in each village are bwaimas, store-houses for yams, each of the bwaima with a totem board at the top. Every male of standing has his baliku or garden plot. In addition to ordinary garden produce the natives grow copra which they sell to traders. They are also skilled fishermen.

Next morning the *Cat* takes off from Kiriwina at 8 o'clock sharp and heads for the DeBoyne Lagoon on which we sit down a couple of hours later. In this lagoon 22 Japanese planes are sunk. You can see them on the bottom if you travel across the lagoon in a small boat.

This is the *Cat's* port for the steep-sided island of Misima which rises 1,000 feet and is some six miles eastward. Some say Misima is the most beautiful island in the Territory of Papua and Trust Territory of New Guinea.

Leaving the lagoon, we fly back to Samarai over a chain of low-lying coral islands and lagoons. From Samarai we fly the last leg to Port Moresby.

For the *Cat* there is little rest. She flies at least four days out of every seven. The next Monday we board the big flying boat for a four-day trip covering points in New Britain and the Solomons.

Shortly after dawn we head over the Owen Stanley Range and through the gap at 8,000 feet. On either side is a great wall of mountains above cloud level, and below us the clouds are broad fields of white, brilliant in the early morning sunlight. To our left, Mount Victoria rears 13,420 feet in the sky. It is the highest recorded peak in Papua, though there are higher in the trust territory. West of Wabag (in the central highlands area of northeast New Guinea) there are cliffs up to 15,000 feet. We once flew into a valley at 12,000 feet and the cliffs which surround it towered far above.

Soon Oro Bay, famed in the war, is like a bright splash of molten metal away to the right. We cross the north coast east of Gona, get a distant glimpse of sunken Japanese ships there. Now we head across 100 miles of ocean toward Kandrian, New Britain. Kandrian is a lovely green village on the edge of a calm deep-water harbor protected by the natural breakwater of three identical ridge-shaped hills joined end-to-end. Carved and painted native canoes with outriggers come out to the *Cat*.

On to Arawe—where on December 15, 1943, the United States Marines landed. The place still bears marks of that action, which introduced amphibious war equipment to the southwest Pacific area. The wreckage of crashed planes and seacraft remains.

At the next stop, Talasea, on the eastern shore of Willaumez Peninsula, New Britain, a Chinese family comes aboard from a launch—headed, no doubt, for Rabaul where there is a considerable Chinese community. In pre-war days, when Rabaul was the administrative center for the then Mandated Territory of New Guinea, Rabaul was a cosmopolitan place. At Talasea, too, is an illustration of the hospitality which awaits the *Cat* at so many of its calling places. A woman in a launch produces thermos flasks, cups, a box of cakes—.

Airborne again and headed across Kimbe Bay, we look down on Lake Dakataua, right near the tip of the peninsula yet about 250 feet above sea level. This is a volcanic region. Once the harbor at Talasea was ringed with steam and the water started bubbling under the aircraft as we took off.

After the flight across Kimbe Bay we climb for height over the last section to Rabaul—a bumpy ride across the mountainous northern tip of the Gazelle Peninsula—and arrive at Rabaul about 1 p.m. Rabaul is on the shores of Simpson Harbor, one of the largest and best in the islands and with two volcanoes—occasionally active—very close. Between wars and eruptions, Rabaul has had a bit of a shaking up at intervals.

Many ships are sunk or partly sunk in the harbor, and wrecks of warplanes litter the area. The charming town of solid stone buildings constructed by the Germans before World War I was completely razed by bombing in World War II. Now there is scarcely a trace of the old township left. Many of the buildings in the new town are necessarily temporary.

From Rabaul early next morning we make a run across open sea to Sohana in the Buka Passage between Buka and Bougainville Islands in the Solomons. This trip we are looking for a missing 48-foot trawler with a European, his wife and five natives aboard. Friends are getting anxious and so the *Cat* is asked to scan the pale blue sea for traces of them. We fly a bit out of our way to make the search but are unsuccessful. Later in the day we hear the missing trawler has turned up at an obscure port well off its course—result of engine trouble, a small sail and strong winds.

The Japanese had a large base in Buka Passage during the war and war damage at Sohana was heavy. The area is famed for the blackness of its indigenous inhabitants. To say they are coal-black is scarcely an exaggeration. At Sohana, the inevitable double canoes come out to collect and deliver passengers and cargo, and we take off for Inus, Kieta, Buin, then return via Inus and Sohana to Rabaul.

In carrying capacity, the *Cat* more than makes up for lack of speed. During the war, the *Catalinas* carried tremendous loads. We on the *Island Chieftain* like to say, "If you can pack it in, we can fly it away."

This, of course, is really a bit of braggadocio—but it typifies the spirit of our operation, linking the scattered outposts of the South Seas. END

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The Jet Stream

(*Continued from page* 15)

quarters which wasn't so bad after all because he had enough fifths to make it come out about even.

(Unfortunately the exact details of this early story are not available from any reliable source to your reporter and so the details here are filled in kind of to fit the known facts; they are what the War College used to call "constructive." In that wise this report is like the communiques from the front where, if those aren't the facts, well by Heaven they better be. If any of you military fellows know all the details about the early experiences and encounters with this mystery, I wish that you would write me so that we can leave the history of it in a more or less chaste condition, no matter how unmilitary or unorthodox a way that may be to leave history.)

Soon there were other reports of fast planes making fantastic speeds and reports of fast jets that just stood still.

At first, of course, all such stories were laughed down. Pilots are given to a very robust imagination, as we all know, but in time there were too many similar stories to ignore and when something cannot be ignored it is the military custom either to investigate it or to promote it. So they investigated it.

Along about the same time the radio sonde balloons began to act up. Perfectly sober meteorology workers told of balloons laying their ears back and going 200 m.p.h.—even 400—and this is something that balloons are strictly not authorized to do.

Now, the scientists had been lurking about all of this time making little jabs with their slide rules and they took a few quick ganders and they up and said that there was a newly discovered phenomenon aloft of the greatest significance which their mathematics allowed for, something that was mighty convenient even though hardly true. Since this is a scientific paper I should like to digress to point out that higher mathematics is like religion, the most attractive thing about it being how readily it conforms to the things that we want to do.

So the scientists set about charting the facts. Probably in science there is nothing quite so inconvenient as the facts for they sure have a tendency to ruin some mighty attractive hypotheses. It was soon clear that a most strange thing existed over our heads and had been doing business up there even before Columbus discovered that the world was not on the square. It is a wind that blows very hard, a stream in the air ocean like the Gulf Stream in the water ocean.

It moves with fantastic speeds; 300 m.p.h. has been measured and 450 reported. It is a thin stream, with its center about to scale on the accompanying map, and the whole stream only about 500 miles wide. It tends to circle clear around the earth like an infinitely skinny doughnut. It is not a rare phenomenon like a tornado tail, but this wind is there all the time except in spots where it seems to whip apart.

The thing is a hazard to fast, high flying airplanes if pilots don't take it into account. It affects our guided missiles. It may, when better understood, be used by our airplanes to make hitherto fantastic speed and distance records. Russian scientists experimented with it in the hope that they would have a conveyor belt which might be used to deliver to us disease germs or radioactive cobalt or both.

Here is how your reporter caught on to the fact that the jet stream—or the "flume winds" as I prefer to call this queer streak of nature—existed.

I had been flying along in my Dizzy Six and now and then I had caught a short hop on a 200-mile wind but not for long, and I really was not aware of what was transpiring, as we writers put it. Then I heard that more than one high and fast flying jet had disintegrated in the air, and then I heard that this and that jet pilot would come down and report severe turbulence in clear air and it was true enough—he would be pretty well bruised up. Upon making inquiries I discovered the jet stream or flume winds.

FLYING's editors gave me the scent that sent me. Fortunately the group of scientists that had as much if not more to do with the detective work on this matter than any other group was at the University of Chicago. I let my hair grow a little and went out to see them. In this small story credit cannot be given to each of the sage jousters in the front ranks nor what he speared; this is a popular story.

Dr. Herbert Riehl is a pioneer, and I saw him, and with him his assistant, Chester W. Newton, and also Dr. E. Palmén. Dr. Palmén is from both the University of Chicago and the University of Helsingfors, Finland. I didn't get to talk with Dr. C. G. Rossby, formerly chairman of the Department of Meteorology at the Chicago school, who first conceived the notion of the atmospheric jet stream. However, these three men bore up very well under my questioning. The following is partly what they told me and partly what I have copied from a very informative and comprehensive report of the Royal Meteorological Society, Canadian Branch, titled "The Jet Stream," by P. D. McTaggart-Cowan.

What is the flume wind like? How can you picture it? It is a river of air over our heads and its main characteristic is its high speed, and that is its main significance. Its other outstanding property is its amazing length, extending for thousands of miles and sometimes completely circling the earth like a ring. When it doesn't circle the earth like a ring it is like a ring with breaks in it.

Imagine a glass wind tunnel high in the atmosphere—with air speeding through it. Flatten this tunnel so that it is oval in shape, much wider than it is deep. See that it is thousands of miles long. Then take the glass sides of the tunnel away and you have the jet stream or flume wind.

How high up do you have to go to get to the stream? The bottom may be as low as 15,000 feet, well under the top cruising levels of our now obsolescent airliners. The top of it may be around 50,000 feet. The center line of the stream is roughly around 25,000 to 40,000 feet; this is the line of maximum velocity. This stream, you see, is quite like the Gulf Stream, with the greatest velocity in the middle, as in any river.

How wide is it? It is much wider than it is deep. In cross section it is much like a ribbon. The high speed center may be only 25 to 50 miles in width though the

15 YEARS AGO

FROM the June, 1936, issue of this magazine:

"General Billy Mitchell said the next war will be won in the air. Many astute minds believe we will have to wait for the next war to see . . ."

In 1935 a total of 1,691 light airplanes were manufactured in the U. S.: 1,079 for domestic civil use, 317 for military service and 295 for export.

Ben Howard, veteran pilot and raceplane builder, introduced his newest plane, the DGA-8. The four-place cabin monoplane, powered by a Wright

Whirlwind 320-h.p. engine, had a 172-m.p.h. cruising speed and a top speed of 185 m.p.h. at sea level. After its initial test flight (described in the June, 1936, issue), Howard commented, "She flew just the way I knew she should. The plane lived up to all the specifications and then some."

Another home-built hangar, complete with a small office, was described in detail. Cost of material: $250.

Carl B. Allen, New York aviation writer, commented on the "deathtraps" flown at the National Air Races: "The really high speed jobs of the type which have been winning the Thompson in the last two or three years ought to be eliminated until they can be made safer. Flying these ships is just like walking a tightrope . . ."

Editor John Rathbun wrote: "Transatlantic flying service on scheduled runs is just around the corner, so they tell us, and we're likely to turn this corner almost any time in the near future. Our last word from the builders is . . . that the great planes are nearly ready for launching, and they have already been giving special training to the pilots for some months. . ."

TWENTY YEARS AGO

A rocket which could be controlled from take-off to landing was developed by German Inventor Johannes Winkler. Using gasoline and liquid oxygen for fuel, the rocket reached an altitude of 3,000 feet.

whole stream is much wider. To quote from McTaggart-Cowan: "Wind speeds decrease very rapidly to the north and south of the jet stream, reaching values as high as 100 knots decrease in 100 miles on the north side of the jet, and 100 knots in 300 miles on the south side of the jet. This constitutes a very strong horizontal wind shear."

That seems like a pretty big conduit, doesn't it? But consider how small this channel is when drawn on the map. In the maps published with this story, the heavy line is very roughly to scale.

The vertical wind shear is very strong, also. Such shears mean turbulence, just as they do in the rapids of a mountain stream or creek. Quoting: ". . . severe high turbulence [in perfectly clear air] will occur on occasion along the boundaries of a well-developed jet stream . . ."

Are the flume winds caused by fronts? Do we find them along the lines marking fronts? The flume winds seem to be influenced by and in a devious way connected with air mass pressure and as a rocking-chair scientist, I myself think they are connected with temperature gradients. But these thread-like winds are not caused by the same thing as the winds that we have been navigating by. They are something entirely different.

Where do we find the flume winds? How far north and south? The stream, like our feathered and our fine-feathered friends, moves south in the winter and north in summer. In winter, over North America, the flume is located around 30° N to 50° N. In the summer months there is a north shift to possibly as high as 55° N.

All of these figures are very rough because if there is any additional characteristic of note in these winds it is that the stream does not stay put. Actually it swells up and then it narrows, it speeds here and slows there, and it writhes. It writhes so much, in fact, that sometimes it breaks in two like a glass snake. So in your imagination, to complete the picture, think of an air stream that is like a thread-like and invisible worm, that is whipping in pain, in waves and half loops. To see this action in the tube winds best you would need to follow day by day charts of the stream, but a look at the charts printed with this story will suggest their form.

Such charts will show some very interesting figures. For example, note on the chart dated November 22, 1950, that two streams flow together to make one. This strange fact is very difficult to reconcile with any hypothesis as to cause. Note on the chart dated November 10, 1950, how the stream loops south and then north.

Now we come to the question that is fogging the spectacles of many a scientist. What causes the jet stream wind, the flume wind, the tube wind—this whistling stream thousands of miles long? It is a good question. In fact right now it is a dilly.

There are hypotheses, of course. No scientist would be found dead without one. The trouble with any given hypothesis that I have heard is that it tends to argue with some other fond notion that we have had. It is, using the scientific lingo, incompatible with this or that. A fellow like your modest reporter, a fellow who earned only one key in his life and that a skeleton one, would not be brash enough to oppose, upon any intellectual battleground, the scientists he talked with or whose writings he skittered through. Nevertheless I got the impression that with all that they knew, they would like to know some more—a great deal more.

For my fellow readers I should like to say that here we have a problem in kinetic energy with a lot of gas molecules to handle. There is friction on the edges of the stream and it would seem that the stream must continuously be regenerated along its course. If you like to speculate, for the fun of it look up the Monroe Effect. This is the principle of the shaped explosive charge that has been used in the anti-tank bazooka shells, that has been used in the A-bomb, and that our scientists hope to use to make the H-bomb go into fusion. (I bet it goes into confusion, instead.)

And when you have done with that you may cast a bleary eye at the Bernoulli Effect and, for good measure, at Charles' Law. And don't forget that the flume wind usually blows from west to east but it can, just to make things interesting for the inertia boys, blow with gusto from east to west.

Well, what is your guess? Write us and let us know.

What the scientists would like to do is to be able to predict the position of this stream in order to protect our high flying pilots—that is the crying need. They would like, also, a good predicting method for the guided missile lads; you know some of our rockets have hit a flume wind and tumbled end over end and we even have some rocket-mounted camera pictures of that. Since the flume wind has been shown by Dr. Riehl to have a decided influence on weather, they have still another objective.

The problem is not easy. But one thing is true for us dummies. We have to revise our primitive notion that the air blows from high pressure to low pressure. If any of us think that it does we have only to consider the case where the flume circles the earth and you move your pencil down wind, going, of course, from the higher pressure to the lower pressure and pretty soon you are back where you started and there the pressure is higher and lower at the same time. Dear, dear.

The truth is that we don't know, like the chicken and the egg, whether the swirling air masses cause highs and lows or whether the highs and lows cause the swirling, or whether each causes the other. Some of the harried meteorologists are, I suspect, about ready to throw up their hands and do like the nuclear physicists had to do, lay the whole darn thing to chance—known as the law of probabilities, the statistical method. This means, in practice, that you find some esoteric term and then take it as it comes.

At any rate the flume wind has been quite a blow to me. How about you? END

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Another Saucer Mystery

(*Continued from page* 23)

lights were blinked five or six times. The rest of the time they were steady. When we reached a point east of the field (the DC-3 was headed northeast), we observed a change in the object. By the time we realized what the change was, it dived over our nose at about a 160° angle to the heading of the DC-3 and 200 feet above it.

That brought the object down beyond the left wing of the airliner, and then came the strangest part of the whole encounter. Instead of running by, as any aircraft will when met nearly head-on, the object abruptly (as quickly as the heads of the pilots could be turned) was flying in the same direction as the airliner—and at the same altitude and the same speed! Here it was, flying formation with us, about 200 feet away!

And the object was big! We estimated the size as being anywhere from that of a B-29 to half again as big. The time was 8:30 on an exceptionally clear moonlight night, so we got an excellent silhouette view. There was a definite fuselage and wing configuration. The fuselage was cigar-shaped. The wing was further forward than a B-29 wing and no engine nacelles or jet pods could be seen. The wing had no sweepback, being perfectly straight. It had a high aspect ratio like a glider wing.

I couldn't tell whether the object turned around or just reversed direction. We didn't see any jet glow or exhaust flame. As the object dived across our nose, the bright white light observed by the tower could be seen at a slight angle—not in full force as it would have been head-on. As nearly as could be determined, this light was located on the bottom of the fuselage. It was either in a "tunnel" mounting that blocked the view, or was turned off as it came toward us. From take-off to the time of this run toward the airliner, we were able to see a red form of navigation light.

There was insufficient light to determine the probable material from which the object was made, or if there were any markings on it.

About the time this object was flying on the wing of the DC-3, a Cessna 140 made an emergency landing at Sioux City and parked while the object was still in sight. After the object was lost to sig t a *Bonanza* arrived from the east-north st. These were the only other aircraft in the vicinity at the time.

The object flew formation on the eft wing of the DC-3 for four or five sec ds or more, then started dropping down nd under the fuselage of our aircraft I reduced power and made a left tur to the west over the Sioux City field attempting to keep the object in view. After losing sight of the object under the belly, we made a right turn in an attempt to regain sight of it, but no further contact was made. We continued our scheduled flight to Omaha, Nebr.

In addition to the two Mid-Continent Airlines' pilots, three other persons are known to have seen the object. One was a passenger aboard the flight who happened to be looking out the window at the time. The other two were Chief Controller John Williams of Sioux City Tower, and his fellow controller, whose name I don't know.

The passenger, incidentally, is an aide to Col. Matthew Thompson, USAF, at Offutt Field, Omaha, Nebr., who is assigned to investigation of strange aircraft. END

Magnetic Compass

(*Continued from page* 28)

learned in time that electric wiring could raise Old Ned with a course, especially when the wires had juice in them.

Engine vibration could make a compass spin like a top. Pivotal friction within the instrument caused the shaft to lag, then speed up. Broken jewels were troublemakers. Leaky cases and murky fluid could be cured but the addition of radio equipment fouled us up again. Screw-drivers and pliers that came aboard in flying suits frustrated us from time to time. Even movement of the front stick itself (having been inadvertently magnetized in manufacture) would affect the compass.

Then the grand-daddy of all compass problems showed up. This difficulty was called "residual magnetism," for it resided (and still does) in every piece of steel tubing in every part of the fuselage. The vertical welded members, the diagonal members, the longerons, clusters—all of them had it.

From a physicist we learned that we could pass a fuselage through a gigantic coil and slowly de-magnetize the structure. But if we had constructed this giant coil, it would have neutralized only the horizontal members. The vertical and diagonal tubing would hold on to their fields. With three big coils, the fuselages could have been neutralized in three directions in three painstaking operations.

But we were even more dismayed to learn that every hard landing could induce new residual magnetic fields that would affect the compass. Every new steel tube that went into the airplane, every accident would destroy our work; and we would have to start over. This was the insurmountable obstacle and I don't believe it was ever solved. We finally decided that we had to accept the compass as a limited-use gadget and accept it as it was, subject to manifold vacillation.

In the Third Liaison Training Detachment at Denton, Tex., I taught artillery officers what was called "navigation." The officers studied the fine Air Force computers, "confusers," and "mis-calculators." With tongue in cheek they figured that on a true course of 180°, wind from 90°, deviation and variation worked in, that their compass heading should be 92.5°.

Then on cross-country they did what most experienced pilots do—they used the compass as a secondary reference only. It was merely a check on what they already knew. It might read 60° or 160°. It didn't matter. They had learned quickly that dead reckoning in texts, and dead reckoning in a lightplane are two different things.

One Sunday a rancher-pilot flew in to see me at Lovelock, Nev. He had crossed a couple of ranges and a barren desert to get there. I asked him what compass heading he had used. He flicked an imaginary ash from his hand-built cigarette and said, "Well—yuh jist fly over thisaway and here yuh are."

There are visible marks everywhere on the earth's surface which can be read, interpreted and flown by with ease. In the midwest a section line angle, a good chart, and a $2 watch make practical navigation more accurate than radio compass. In the far West topography lends itself to flying without the chart. Conditions in the East vary somewhat, but horse-sense navigation and a good chart should bring you home every time. For extended over-water travel you should have a gyro compass.

One degree of compass error means a mile off in 60 miles. The best authorities claim that a pilot must be content to fly within five degrees. This means a potential error of 15 miles in a 180-mile range lightplane, under ideal conditions and with true take-off course. But what if thermals complicate the situation? Your compass will have a severe case of St. Vitus' dance. After working all the off-course problems you wish and even figuring some radius of action problems, you'll still end up with an alternate airport problem—the problem of how you got there.

Manufacturers are not at fault. They have come up with the best possible device for the modern lightplane given simplicity and low cost. The fault lies in not looking facts in the eye.

Most lightplane compasses have not been swung since new. You can check this statement by stepping out to your airport and looking at the compass cards. I believe fully 90 per cent of the current trainers in use today have never had their compass oriented to current conditions.

If every licensed airplane were swung at least annually, cross-country flying would be somewhat improved. If every student were taught what experienced pilots know—the limitations of the critter and how to fly without or with little use of the compass—more people would be showing up where they ought to. That old excuse of "that cross-wind blew me off my compass heading" is a little threadbare.

Each modern text and pilot exam should have a little horse-sense navigation written into it. A good $20 gyro compass could lick the problem but until then, I'll continue to stick to the two-bit chart, the $2 watch and the check-points. END

Stiff Rules

(*Continued from page* 11)

want better instruction. They criticized the airplane itself, and called for improvement in performance and controllability. They intimated that today's airplane requires too much of the average pilot. They asked for research, saying in effect that experience is not a substitute for positive facts reached through scientific study. Then they called for voluntary refresher courses for pilots who want to fly and live. These recommendations urged the CAA to "take specific steps aimed at improving the pilot-error accident rate."

The disturbing accident figures made the committee bold. The study laid before them is a close examination of accident causes attributed to pilots holding private certificates. It included all private pilot causes that contributed to accidents reported to CAA during 1948 and 1949. To check on pilot experience, the committee examined private pilot causes which were contributing factors in accidents reported for the months of June 1948, August 1948, and February 1949.

Two accident causes stood out. In each one, pilot judgment was questionable, if not absolutely bad. Of the 6,920 accidents studied, 846 were due to landings in insufficient space or in an unsuitable area; and 627 were due to take-offs from insufficient space or an unsuitable area.

Thus, in one out of every five accidents studied, private pilots attempted flight to or from "cow pastures." In doing this, they collided with trees, wires, fences, furrows and ditches, or they got into stall-spin trouble in pulling the airplane off the ground to avoid obstacles before it was fully airborne.

Two conclusions appear. If the pilot had shown better judgment, he wouldn't have had these accidents. And also, if he had had a better performing plane, he wouldn't have had these accidents.

In 505 accidents, pilots failed to get weather conditions for the flight—or ignored what they did get. In 255 accidents, the airplane was inadequately inspected before the flight. Improper clearance accounted for 189 accidents, inadequate fuel for 169, and failure to learn condition of the field at the destination for 126. Bad pilot judgment, said the committee.

So—also—was overshooting, leveling off too high, and ground looping, which accounted for half of the 2,000 accidents in the "poor landing technique" group. Undershooting, poor drift technique, landing downwind, landing with excessive speed, and stalls and spins in the approach were other causes.

A large group of unsafe acts by pilots indicated lack of navigational knowledge. The committee found these causes significant in connection with inadequate flight preparation and cow pasture landings and take-offs:

Navigated incorrectly	301
Continued VFR flight below safe weather minimums	197
Continued flight when low on fuel	107
Continued flight into hours of darkness	101

These accidents are the basis, apparently, for the committee's interesting suggestion that pilots ought to be taught "the art of learning when to stay on the ground."

What experience did these pilots have? Pilots in the 51-100 hour group were responsible for 32.1 per cent of the accidents, and those in the 100-150 hour group for 21.7 per cent. Thus pilots having less than 150 hours had 53.8 per cent of the accidents.

So the committee concluded:

"Underlying the accident contributing cause factors noted in this study, there is discernible a basic motivation in private flying worthy of promotion: the private pilot is attempting to get high utility from his flying. He manifests this desire by trying to land and take off without much regard for the airplane's airspeed and attitude, by attempting to reach his destination despite the weather, and by trying to get in and out of cow pastures. Insufficient consideration of the limitations of the airplane and inability to get through near-emergency operational situations adequately, result in accidents."

The CAA felt that the time had come to take definite action. But, what to do? It submitted the case to the industry.

Here are sample comments from operators:

"Require at least 10 hours' cross-country, three of which are dual."

"Revocation of all non-active pilot certificates would increase safety and stimulate the flying business. A pilot must have at least 12 hours a year in order to hold his license."

"More cross-country and strange field landings."

"Simple uses of radio; more map work; ability to use the Airman's Guide; more time on the usual instruments."

A few operators had novel ideas. One said: "Leave the private requirements and exams as they are. Standardize the flight examiners. Let's have better flight instructors. Mail every student a questionnaire with his certificate to evaluate his instructor, and again with his private certificate."

AOPA is skeptical about the change. Their letter to the Administrator was forthright.

"The results you seek are the ones we hoped we would get through the universal adoption of the CAA-Ohio University (cross-country) course. We still endorse that course, and we still feel that its widespread adoption throughout the country would be beneficial.

"Our position is this:

"1. We oppose any additional burdensome regulation.

"2. We approve the increased use of the cross-country course.

"There is some merit in your proposals, but the method you have chosen will not get the best all-round results. Something clearly should be done, and we believe it can be done better by education."

This view, of course, may not be held by every one of AOPA's near 40,000 members but it is the official comment of the association on the proposed changes. AOPA is the only large "voice" of the private pilot, and the association has smart direction in its Washington office. But, on the side, AOPA representatives agree the problem is tough—too tough for cure by regulations, and perhaps too tough for cure by education. They see dollars and cents entering the problem when more training is required, and they know that added expense in flying is Deterrent No. 1.

Now, what kind of a written exam should private pilot applicants have to take? The CAA wrote to some 2,500 operators and a similar number of examiners and instructors, asking

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for specific opinions on what changes would be effective and what kind of a written examination would be helpful. More than 1,000 operators and flight instructors in daily contact with private pilots replied, and submitted material which they felt was important to use in the private pilot written examination.

Until and unless private pilots are educated in the essential elements of flight, any significant reduction in accidents or any increase in respect for the certificate of the private pilot cannot be expected, the CAA says.

To make it easy for pilots, regardless of their educational background, to learn what is required of them, the questions are to be the true-false type. The applicant merely will read printed statements and mark them true or false.

CAA will publish a booklet containing about 200 questions or statements, from which the tests consisting of about 50 questions each will be selected by examiners. Applicants will be able to study the booklet and thus prepare themselves in advance, with assurance that they will be asked no questions not included in the book.

CAA officials hope for better-informed pilots than this simple kind of an examination will produce. They suggest that the book of questions can be backed up by study of several texts already available, and they believe that any pilot having an ounce of curiosity will go beyond the true-false questions and learn in detail what is true and why.

As additional material, they suggest a study of the Civil Air Regulations and of the Flight Information Manual, together with Terrain Flying (advice of veteran pilots), Facts of Flight (on general operation of airplanes), Realm of Flight (on weather), and Path of Flight (on navigation). All of these books are brief, simple, inexpensive and readily available from the Government Printing Office.

Sample questions are something like this:

An aircraft in distress has the right-of-way over all other air traffic. (True or False?)

An airplane in flight does not tend to weather-vane into the wind. (T-F?)

Low, stratus clouds indicate a squall line. (T-F?)

If your altimeter is set at zero when you leave your home field, it should read zero regardless of what field you land on. (T-F?)

Arrangements are made to grade all papers by machine in Washington, as is now done with other written exams.

Responding to the majority "vote" for reinstatement of some kind of written examination, more cross-country emphasis and a more practical flight test, the Board will shortly publish the new Part 20, and set a date for making it effective. At the same time, the responsibility now placed on the instructor will be increased. By these two changes, and through continued education, officials hope to improve private flying safety. END

Group X

(Continued from page 30)

man: "Am I to pour out my blood like the others and not even be appreciated for making my ultimate contribution?"

Someone once said that it is never possible for a man to make friends with those who do not want a man like him even to exist. Colonel Jones was in that position. Not a man in the group wanted him to exist. He had previously commanded a group in a less active theater of war with some success and was confident of his ability and of the future. He had developed several formulae of leadership which had worked well for him. But he was soon to learn that the application of formulae was not leadership.

His first meetings with his new staff were marked with cool courtesy. As he had made no change or suggestion, had greeted them with some humility, praise, and enthusiasm to be their associate, their distrustful manner baffled Jones. His first hypothesis was that they considered him to be a recruit, his previous combat service negligible, and his three indoctrination missions (flown with another group) elementary. Jones resolved to postpone any action on his part until he had flown with them enough to gain their confidence. He therefore led them on three missions to Europe in rapid succession. He leaned heavily on his deputy and his squadron commanders, acting almost exclusively upon their advice. The heavy bomber losses continued at about 20 per cent for each mission.

At the end of that period Jones could hardly contain the many ideas and plans with which he hoped to improve operations and reduce the losses. Although he knew he had not yet gained the confidence of his people, he was at a loss to know what next to do to win them over. With airplanes and crews being shot down at a prohibitive rate, Jones felt compelled to act without delay. Perhaps if he could force some changes that would improve the bombing and reduce losses, those results in themselves would win their respect. He despaired of ever winning them through friendly overtures or persuasion. His only recourse seemed to be arbitrary command. Because the situation had become critical he resolved to force the reforms upon them.

One of the outstanding weaknesses of the group as seen by Jones was its lack of teamwork and precision. Each of the four squadron commanders was at sword's point with the others and, in addition, considered the group headquarters itself an unnecessary echelon of command. Staff meetings were bitterly acrimonious and Jones struggled helplessly to gain some spirit of cooperation. This attitude was mirrored in the group's air work. Formations were ragged, squadrons did not support each other, flight plans were haphazardly followed, air leadership was often ignored, the radio frequencies crackled with morbid humor and irritated profanity. There were numerous aborts, and take-offs were sloppy, drawn-out affairs.

Jones began his buck-up program with the take-off technique. The merits of a snappy take-off procedure were not readily apparent. Nothing seemed to be gained by starting all engines at the same instant, by all airplanes beginning to taxi to their take-off positions on the exact second, or by each bomber roaring into the air at precisely 30-second intervals. Ample time was always allowed for late take-offs to join the formation in the air, and there were frequently genuine troubles that caused delays. On the other hand, with precise take-offs a feeling of integrity and strength could be inspired.

A mutual confidence was engendered when several hundred people in massive warplanes moved together as a well-oiled machine, with none faltering, none jamming the works, and everyone able to depend on everyone else. Jones had felt it in other groups and he knew such a spirit of unity would carry over into the air work where everything counted so dearly. He knew also from his own experience of the tense, dreadful wait in the airplanes after "stations" and before "start engines." He believed that if brilliant pyrotechnics were used to signal the various take-off activities, the distraction would tend to ease the anxiety. And he further thought that such a change, which required no additional work for anyone except the flare shooter, would be a popular one. It was made to order for the opening wedge of his extensive series of reforms.

At the next staff meeting he suggested the new procedure in this way: "Gentlemen, I've been thinking how we might put a little more color and zip into our take-offs. We have vari-colored flares. I saw another outfit use flares to signal the times to start engines, taxi, and take off. It looked very impressive and the people seemed to get a kick out of it. I know we calibrate watches at briefing and everyone knows the exact second to start engines anyway, but flares will remind those not looking at their watches. On top of that it might encourage the crews to move off together. What do you think?"

Jones could tell by regarding their faces that they took a dim view of his proposal. But the issue was not a vital one and their objections were not vehement. Lieutenant Colonel Edwards, who commanded the most independent of the squadrons, led the vocal opposition.

"Can't see that it does anything more than add extra duties for someone to fire flares," objected Edwards. "I think they move off together okay now. Only reason some might not is because of a mechanical difficulty. Flares wouldn't make any difference there."

"It might cause a little extra work," countered Jones, "but hardly enough to wear anyone out." Jones wished to avoid the touchy subject of precision. It was obvious to him that his standard of precise operations was considerably higher than the standard of his staff and he didn't wish to become involved in the futile argument of the merits of West Point drill. He realized that his remark

was a mistake, that it held an element of sarcasm not conducive to persuasion, but he had to let it hang.

"Well," said Edwards, "one of the busiest men on take-offs is the flying control officer. If we add even a little job like flare shooting to his list of duties he's likely to make a mistake in recording the take-offs or something else. He's plenty busy. Did you ever watch him?"

Jones ignored the implication that he didn't know what went on in the control tower. All would be lost if he allowed Edwards to trick him into an argument unrelated to the issue, particularly when such an argument would involve Jones' defense of himself before his subordinates. He was ready, however, for the "too much work" objection since he had anticipated it. He did not hope to convince Edwards by logic or by any other method just then. He only hoped to smooth the way so that Edwards would have little justification to oppose the plan. Thus the argument had been turned into the channel Jones had been waiting for. "The group navigator gives the timeticks at briefing," Jones answered. "He's the man who keeps all clocks on the right second. What does he do after briefing?"

"Goes to bed, I guess," Edwards remarked, unprepared for the question.

"Any reason why he can't fire the flares?"

"No, I guess not." But Edwards had recovered with a new objection. "I don't like it though, Colonel. If everyone gets used to flares they won't pay any attention to their watches. Then one day the flare shooter won't turn up and the whole group will get off late."

"I suppose that could happen," said Jones, "but we wouldn't have to make any change in existing instructions. We could just superimpose the flare shooting onto our regular take-off SOP. Just tell people that flares are an additional reminder. As for the flare shooter, we'd have to depend on him. In this business there are many individuals we have to depend on. You know that."

"Seems to me we already have enough details to worry us," grumbled Edwards, "without dreaming up more that we could get along without."

Jones sensed that Edwards was running out of specific objections and that the others who had been bystanders in the exchange were partially swayed and ready, at least, to close the subject. Then Jones gave them the needle. It went in so gently that they never realized it was the beginning of an injection that would revolutionize the outfit.

"Well, suppose we give it a try," Jones said. "Let's work it a while, and if you don't like it, we'll cut it out." This was an arbitrary order and they knew it. Discussion was closed. Jones had not gained their support nor even their grudging consent. He had simply taken some of the venom from their objections on general principles. By now he knew that any suggestion he voiced would be rejected on those grounds. But if his take-off plan proved successful, his next suggestion would be more deliberately considered on its basic merits.

Edwards and the others agreed, with reservations, and the program for precision take-off was inaugurated as a standing operating procedure.

In the early morning darkness before the next combat mission, 42 crews watched the control tower as their second-hands crept to "start engines" time. Energizers were meshed 10 seconds before, and when the two yellow flares burst above the control tower, 42 engines jumped into thundering life. These were quickly followed by the starting of the other 126 engines, and in a moment the airfield was throbbing with their roar of power.

Five minutes later a green and yellow flare exploded in the darkness. The lumbering bombers began to move as a single unit, jockeying for position, to their take-off places. Then the final green-green flare signalled the leading *Fortress* to give it the gun, and it rolled down the runway, shooting flames from its exhaust stacks, picking up speed, and lifting into the air. This was followed by another and another and another at 30-second intervals, until all 42 were airborne and making the world tremble with their terrific vibrations as they circled above the field. It was the best take-off in the group's history. Nothing had been changed. Only some color and interest had been added. The new commander's reform program had begun.

At the next staff conference Edwards volunteered the information that the crews liked the flares and that perhaps it might be well to continue the custom. The group navigator even enjoyed shooting the flares. It was rather like pulling the trigger that set the several hundred thousand horsepower juggernaut in motion. Jones thanked Edwards for his help in getting the procedure underway and turned the discussion to flares in general.

"No reason why we can't use them profusely," Jones said. "The armament officer tells me our warehouse is full of them. Maybe we could use them to advantage in other ways." Jones wished for Edwards to propose a particular way.

"Well, the leaders fire them for self-identification to help their wing men form," said Edwards, and Jones knew he had hit the jack-pot.

"Yes," he said, "but when you look for a leader, he isn't firing flares; and when someone in your plane sees flares, by the time he calls you the flares are out and all you see is two trails of smoke."

"Yeh," said Edwards, thinking, "It doesn't work too well. Can't see the colors half the time."

"How often does the leader usually fire flares?" asked Jones.

"Every few seconds," answered Edwards, "but I guess they could be fired oftener."

"A swell idea!" jumped in Jones. "The engineer does the shooting. Why doesn't he fire one flare after another just as fast as he can? Then maybe the wing men could identify their leader better."

"Worth a try," responded Edwards. "Sure use up a lot of flares though."

"Well, you have my full authority to use all the flares you can fire," said Jones. "If you decide it helps the form-

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ing-up in your squadron, let me know and we'll make a group SOP of the idea."

So the ice was broken. Before long Edwards became an enthusiastic supporter of the group commander's revitalizing program. With each successful change new enthusiasm was created. True, there was a never-ceasing resistance to change, as such, but each new convert that Jones made decreased the difficulty of enforcing the changes. Formation flying was tightened up and rivalry in this skill provoked between squadrons; practice missions were run at every opportunity; stiff penalties were laid on unjustified aborts; radio discipline was enforced; engineering was held strictly responsible for mechanical failures; bombardiers and gunners were constantly scheduled on ground trainers. Thousands of practice bombs were dropped and millions of rounds of ammunition fired. Navigators and lead teams studied target folders for hundreds of hours before being entrusted to the direction of the air attack.

Gradually the group's record over Germany improved. Targets were hit oftener with more compact bomb patterns. Losses decreased steadily. With these successes the self-pity that had been gnawing at the group and rotting its moral fiber was replaced by pride: a pride in its ability and in its teamwork. It had acquired *esprit de corps.*

ANALYSIS

In this situation little was gained by the leader's attempt to be friendly. Normally, particularly in less-intense situations, a friendly approach is a good rule of thumb. Subordinates are always doubtful and apprehensive of a new leader. Until they become assured that he is approachable, fair, and easy to deal with, they will move slowly, be confused and frustrated. But occasionally, as demonstrated here, the new leader will find himself disliked even before his arrival simply because he is a symbol of something hateful. He can only achieve true leadership then by somehow destroying or altering that symbol.

This group attitude had nothing to do with the leader's personality. The attitude would have existed regardless of how he approached his people. Of course by being unfriendly he could have exaggerated the hate, but friendliness in itself could not dispel it. Hence the formula of friendliness which Jones had formerly used with much success failed utterly in this situation to gain his acceptance as a popular leader. It was good as far as it went, but in this instance it didn't go very far.

Jones failed to analyze correctly the hate expressed by his men. Here was a clear-cut case of displaced aggression. The intense suffering they had undergone, the constant fear and frequent traumatic experiences, could not be compensated for in the impersonal aggression of air combat. Adequate compensation was impossible and it overflowed into aggressive thought and action directed at each other, the high command, and particularly their new commander.

Not being insensitive to the valiant fight being put up by the group, Jones assumed command with some feelings of humility and unworthiness. As soon as he sensed the hatred directed toward him he jumped to the conclusion that they hated him because he was not experienced in their particular type of combat. This was reasoning from a subjective point of view and although there was some objective basis for his conclusion Jones overrated its importance. After becoming skilled in their type of combat, the hate had not diminished. Jones had attempted to cure a symptom of the group's disease, not the cause.

All this was lost time: time spent in trying to make friends and time spent in trying to prove his worthiness. The disease of displaced aggression was unchecked, gathering momentum.

Only by chance did Jones hit upon the true cause of the disease and check its progress. The group had almost lost feeling for the enemy. The enemy had become impersonal and could not be blamed for the group's fate. Emphasis had been put on individual survival rather than attack. The bombing of the objective had become an insignificant incident. The great emphasis that Jones placed on bombing accuracy, gunnery formation, teamwork, etc., redirected the group's aggression to the enemy. The group became progressively more eager to strike back at the Nazis. Strike photos were eagerly studied by all, and spirited critiques turned attention to the enemy. Direct aggression had supplanted displaced aggression. With the gradual lessening of the hate directed toward him, Jones was able to afford leadership more applicable to a normal situation. Had he correctly analyzed the unusual situation in the beginning, his task would have been simpler. END

"The views expressed in this article are not the official views of the Department of the Air Force or of the Air University. The purpose of the article is to stimulate healthy discussion of Air Force problems which may ultimately result in improvement of our national security."

—Air University Quarterly Review

Escape Flight

(Continued from page 13)

C-47's with spare parts. One by one we started service on international lines, meanwhile rebuilding the network of internal airways.

At the end of 1947 we were doing so well that we began negotiations with Lockheed to buy three *Constellations* for a regular service to India and special flights to the U. S. during the Sokol Festival in Prague in 1948. At the beginning of February, 1948, I left Prague for a three-week flight to India. On my return I intended to leave immediately for the U. S. to take delivery of the first *Constellation.*

But the Red putsch in Czechoslovakia changed everything. It buried our hopes for a bright and decent future.

I awoke one morning to find that everything I had done during the war was charged against me as behavior "irreconcilable" with the new political concept of my country.

Even my wife was a "criminal type" to the new regime. She had escaped from German-held Czechoslovakia to England, where she worked as a journalist during the war in the Information Department of President Benes' office in London. Later she volunteered for the British WAAF and served as an officer at the Czech Air Force headquarters in London.

Even my three-year-old daughter had a "black past." Her family background was considered "politically disgusting"—she was also British by birth, christened by a Czech Air Force chaplain. Her Godfather was Air Vice Marshal Janousek, ex-chief of the Czech Air Force in England and now serving a life sentence in the Prague military prison.

The period of uncertainty and oppression had begun.

The fate of the Czech Airlines itself was doubtful. The Lockheed representatives interrupted negotiations and left Prague. In the first few weeks we thought the airline would be closed down because there were no faithful party members who could replace us if the Reds purged airline flying personnel.

No Czech pilots had been trained during the war and since 1945 there hadn't been enough time to train a new lot. The few newly-trained Air Force pilots lacked the experience necessary for civilian airline flying.

Too, knowledge of English was important. After the war, the American system of airways communications was adopted in Europe and knowledge of English was an absolute necessity for radio contact with the ground.

Then came an order from Moscow to keep the airline at all cost. It provided an important and useful connection between Russia and the free world. Russia itself had no direct air connection with the west and was using the Czech Airlines for this purpose.

Immediately, the board of directors and some administrative personnel were purged. But the flying staff was practically untouched though it was strengthened by a lot of new second pilots, wireless operators and stewardesses who had little technical knowledge and no experience. They had two main purposes: to get experience in transport flying so that one day they could take over, and to

THE PROFESSOR

(See page 48)

The somberly-garbed gentleman is none other than Steve Wittman—all dressed up for a recent air show comedy act.

spy on us. They got orders directly from the Ministry of State security.

We all knew that on trips abroad the stewardesses would listen behind the doors of the captain's and first officer's hotel rooms. How often I have caught a stewardess, flung into my room when I unexpectedly opened a door!

These new people were also expected to learn English quickly, especially the phrases necessary for getting clearances and instructions for landing.

From time to time some of the newcomers were put on international lines as experimental crews. The experiments were always failures. If the flying controller on the ground used phrases that the crews didn't know by heart the meaning was lost. After each of these experimental flights we'd get a protest note from the American authorities, usually in Frankfurt, Germany, about violations of air rules. One day we collected 40 such protests, covering just one month!

So we older crew members were allowed and forced to fly—but the watch on us was doubled. From time to time someone failed to return home from a trip abroad. These were usually those with English wives who were able to leave the country on their British passports. Every such escape brought new restrictions and precautions. We were grounded from time to time, then allowed to fly again. During one period we were alerted to fly each morning but weren't told our destination until half an hour before flight time. Our passports were kept in a safe at the airport and were handed to us when we boarded the plane. They were taken from us immediately after we landed back in Prague because, according to present law in Czechoslovakia, no citizen is allowed to keep his passport, which is the property of the State.

Another precaution taken by authorities was to ground all single pilots. The Communists felt more secure with pilots with families, especially with children, who were regarded as hostages. This was one of the most effective weapons. It kept us flying—and returning home.

Meanwhile it was difficult to get spare parts for our planes. Here's how the Communists managed to solve that problem. The U. S. State Department had banned export of all aircraft parts to Czechoslovakia. So the Communists worked a devious scheme to get American parts for their planes. They found companies or individuals in neutral countries to buy the spares and pay for them in foreign currency. Then our representative in the neutral country would arrange to ship them to an imaginary destination in another neutral country, such as Sweden. That was the hitch. Though the shipment was from neutral country to neutral country, it was always via Prague. And at Prague the parts were unloaded.

In 1949 the Czech Communists almost got four *Skymasters* in the same way, direct from the United States. Some of their spare parts had already arrived in Europe when the American authorities discovered the scheme and stopped it.

In compensation for loss of the *Skymasters*, Czech Airlines was allowed to purchase three Ilyushin 12's. The payment was made in dollars, of course. So instead of *Skymasters*, we found ourselves with the Russian plane which the Kremlin called the "most modern transport in the world, far ahead of the newest American aircraft." Only one of our pilots expressed an honest opinion about the Ilyushin 12. He was imprisoned.

Our unspoken opinion of the plane must certainly have been shared by the airline officials, however. Only the most experienced pilots were assigned to fly it. That meant that not a single Communist pilot flew the Ilyushin for the Czech Airlines. Not even superior knowledge of Marx-Leninist doctrine could assist them in handling so difficult and obstinate a plane.

It thus happened that the Ilyushin 12, pride of Russian aviation production, was flown exclusively by ex-RAF "gangsters," as they called us.

We didn't appreciate the privilege. It was a tricky business, flying the Ilyushin. And there was no future in it. Even if a pilot survived an accidental crash he would go straight from the wreck to prison for "sabotaging the plane."

By 1950 Communist terror reached new heights in Czechoslovakia. The situation at the Czech Airlines became unbearable. Scores of secret agents watched our every move at the airport. Secret microphones were installed in our rooms. No one was safe. We never knew, when we returned from a trip abroad, whether a secret policeman would be waiting for us at the airport.

And we couldn't quit the airlines!

The Labor Exchange wouldn't give us permission to change jobs because leaving employment without consent of the authorities was considered sabotage against the five-year plan. That resulted in being sent to a forced labor camp by the County Council as "personnel loathing work."

Several times a passenger forced a pilot on the domestic runs to change course for Munich. To avoid this a new precaution was introduced. On every domestic run all passengers were searched for arms before entering the plane. Then two policemen with loaded pistols rode aboard the plane, one in the cockpit to guard the crew and another in the passengers' cabin. This precaution was relaxed temporarily in the spring of 1950 and within a few weeks three Czech Airlines pilots (all ex-RAF) flew to Erding in the American zone of Germany with three aircraft, after changing course on the way from Brno to Prague.

Then the terror regime became even more difficult. At the same time inexperienced Communist crews were trained at greater speed in night and day flying in order to replace us as soon as possible.

We knew that if we ever were to escape from Communist Czechoslovakia we must move quickly. We had laid our plans long before, changing them slightly as new situations dictated. I still can't reveal many of the secrets of our escape.

Night after night we had long conspiratorial meetings, working out details.

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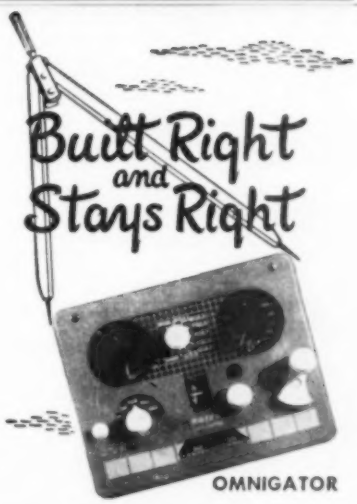

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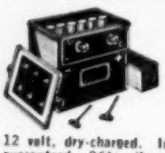

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These meetings were almost impossible to arrange. All pilots were watched night and day. After carefully selecting a secret rendezvous we used countless tricks to reach it unobserved. We knew the walls had ears—and the telephones.

If a fellow pilot wanted to get in touch with me, he would let me know inconspicuously the hour he planned to call. That was a prearranged safety precaution. At that hour I would wait by my telephone.

Exactly on the minute, it would ring. Then it would ring again, and a third time. And it would stop.

Precisely 90 seconds later, the phone would ring again.

Then I would pick up the phone, knowing it was he.

He might say anything to me. "Did you see the football match at three o'clock yesterday afternoon?" Or he might mention a show at a Prague theater—or a cinema. It really didn't matter. The main thing was the hour mentioned over the phone. During one planning period the actual time of the meeting was the hour he mentioned *plus* one. Another time it was *minus* one. We changed the arrangement frequently so it was really hard for a spy to get the exact meaning even if he had the wire tapped.

One of our biggest problems was to find a landing place for the escape plane. That wouldn't be a problem in the U. S. but in small Czechoslovakia, with its tiny fields of a few acres, the problem was paramount.

For weeks we searched the country in our cars looking for a suitable landing area. At that time all main highways from Prague were guarded by police who stopped every car, asking for Identity Cards of all occupants and for the destination and reason for that particular journey.

We had selected a few likely spots from the air but had to rely on our memories. We couldn't mark the spots on our maps. Consequently we often failed to find the fields. When we did find them, they were frequently too small or too soft.

And even if we located a field that seemed just right we had to keep a constant watch on it. So many factors had to be considered. We had to know the time different agricultural crops were harvested. We couldn't have farmers on the field when we landed.

Altogether we set about five D-Days which we had to cancel at the last moment.

Once I got a tip on a small airfield used by a private plane owner before the war. It was about 100 miles from Prague, a bit too far for our purposes. But still I sent two of my friends to investigate. We had heard the field was unguarded.

My friends drove to the vicinity of the field, left their car in a nearby forest and went ahead by foot. Just as they started out of the woods they saw two police guards standing at one end of the strip! My friends ducked back quickly. If the police had spotted the strangers they would have immediately demanded Identity Cards. The mere presence of an airline pilot in the vicinity of an abandoned airport would be sufficient proof of his intentions. At that time the proof would have been sufficient to send them to a forced labor camp, even if they had just been picnicking! My friends faded back into the forest, jumped into the car and drove away so fast that they broke the machine's front spring.

Another day we found a big flat clover field not far from Prague. It was shielded by a cornfield which hid it from the road. We set a date for the escape but as D-Day approached the corn harvest started!

The next field we selected was by a plum alley, and as luck would have it the plums were ripe just as another D-Day arrived.

On the afternoon of September 28 I took a short trip to a spa resort near the Czech border. After landing at the Prague airport the next morning I walked over to the airfield restaurant for a cup of coffee. A few moments later, Captain K——, the company's test pilot, came in and sat down.

"Got your car here at the airport?" he asked in a loud voice.

"Yes. Why?" I answered.

"I wonder if you'd mind taking me over to the Police Station," he said. "I've got to pick up my Identity Card."

I knew immediately that the entire conversation was rigged, designed for any secret agent who might be listening. The real reason, I knew, was that Captain K—— had something urgently important to tell me. Otherwise he'd never contact me in public. Two ex-RAF pilots talking together would always arouse suspicion.

We drove from the airport to town where I dropped him in front of the brick police station. During the 20-minute ride we discussed everything.

As soon as we got in the car, Captain K—— said tersely: "It's got to be done tomorrow. This is the last chance. J—— has told me I'm going to be dismissed on Monday. The order's already signed."

I nodded. We had relied on Captain K——'s connection as test pilot. Without his access to the planes we would be lost.

"Which place will it be?" I asked. "Number One or Number Two?"

"Neither," Captain K—— whispered. "A bright new one. I saw it from the air this morning. We'll go there this afternoon and take a look. It looked perfect from the air."

He pulled out a map and pointed to the spot. We decided to meet that afternoon. I would take the northern route from Prague and he the western, just in case we should be stopped by a police patrol.

Just before Captain K—— climbed out of the car, he said: "I'll meet you behind the village of K——, about 10 miles out of Prague."

The village was in the direction of Mlada Boleslav, the well-known home of the Skoda car factory. That would give me a good reason for the trip: to inquire about spare parts for my Skoda car.

I had no flights scheduled for the next two days because my passport had been sent to the Italian Consulate for a visa for a special flight to Rome on Monday, October 2. It was a general policy that

aircrews of the Czech Airlines be given only one-journey visas for trips to all foreign countries except Sweden, England, Belgium and the "people's democratic countries."

That was a great help. One of our main troubles had been that we three pilots were never off duty at the same time.

This time everything looked favorable. I couldn't be sent abroad since my passport was safely in the Italian Consulate. The third member, Captain R——, had left the day before for England and would return that afternoon. He was due to fly to Brussels in the morning but if D-Day was certain we could risk reporting him sick. Ordinarily you couldn't report sick without really being ill. Every member of the flying staff who was sick had to be reported to the airport police who investigated at his home.

That afternoon I met Captain K—— at the pre-arranged rendezvous and we drove to the field, finding it quite easily. It was covered with clover, well hidden from the highway but easily accessible by automobile. The spot was deserted.

We stopped our cars at one end of the field and walked across to measure it by foot. After 300 paces, I said:

"Oh, let's stop it. It's surely long enough." I was approximately in the middle of the field. It was reasonably hard but wasn't too flat.

"Tomorrow at 10:30," said Captain K——. "I hope I'll be able to get the plane without a police escort. In the big furor I might be able to slip out."

He was referring to festival preparations for the arrival by air of a Russian high official the next morning. The whole airport promised to be upside down by that time.

"Captain R—— has instructions about my family. He only needs to know that it's going to be tomorrow," said Captain K——. "And of course he doesn't know this new place." We agreed on the final details and left in different directions.

At six o'clock that evening, Captain R—— was due from London. His wife was not in Prague at that time. I drove halfway to the airport, stopped by the road and pretended that I had engine trouble. When R—— approached I stopped him. Holding a sparkplug in my hand and pointing to it, I said:

"We're going tomorrow morning at 10:30. It's our last chance. I can't explain things now. I'll meet you exactly at 10 o'clock at the second crossroad after the village N——. It's a completely new place. I've been there this afternoon."

R—— looked surprised—and excited. I continued:

"Now I'll put this sparkplug in. Jump in my car and start the engine. Behind the seat is a map. The place is marked by a blot of ink. Now hurry—and give me a ring later, when you have everything arranged."

Captain R—— nodded. "But how about my trip to Brussels in the morning?" he asked.

"You'll have to phone the airport tomorrow morning and say you're sick and are going to see the doctor."

We both knew it was risky business but it had to be done.

That night I didn't sleep. Shortly after midnight the telephone rang in the familiar way, three times. I looked at my stopwatch. Exactly at the 90th second it rang again. It was Captain R——.

"Sorry to trouble you so late," he said, "but I want to tell you that I'll return your battery tomorrow morning. I don't need it any more. I'll bring it to the airport. Will you be there at 9 o'clock?"

"Sure," I answered. "I'll be there okay." And I hung up.

At dawn I looked out the window at the sky. It was Saturday, September 30, a beautiful autumn day. The sky was brilliantly blue and cloudless. That didn't make me feel better because we needed a good cloud cover. They patrolled every day along the borders of the American zone with Me-109's.

I took a cigarette from my case and my eyes rested a moment on the engraved inscription: "Peace is always better than war, but I go where destiny sends me."

We had our last breakfast at home. In the bedroom my little daughter still slept peacefully. It was almost eight o'clock.

Suddenly the door bell rang loudly. My heart almost stopped beating as I walked to open it. Outside, two men stood at the entrance. They were dressed in the long leather coats habitually worn

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by the secret police and they carried the invariable briefcases under their arms.

"This is it," I said to myself.

"We're collecting money for war veterans in North Korea," said the larger of the two men. "How much will you contribute?"

I took a deep breath. The world suddenly seemed much brighter and the sun much warmer.

I reached in my pocket, but could find nothing but change. "Sorry, gentlemen, I have only some change," I said quite lightheartedly.

They assured me that the amount didn't matter so much as the good will of the donor. That was the normal procedure. Those who refused to contribute voluntarily to any Communistic subscription were reported as unreliable.

I didn't want to arouse their suspicion at the last moment, so I showed them my "good will" by means of a few coins.

Soon after, I took a long look at my flat—and left for the last time.

I went to a house in Prague where I had hidden my personal luggage, as neither my wife nor I could possibly leave the flat with a suitcase. Then I waited for my family, who were to join me at 9 o'clock.

My wife left the flat with our child, carrying her huge Teddy bear. They said goodbye to the housekeeper, an ardent Communist, mentioning that they would be back shortly. My wife was ostensibly going shopping.

Around the corner she took a taxi to an unimportant square where she switched to another taxi and stopped the driver two blocks before our meeting place. My wife walked to the street where I waited with my car.

At 10 o'clock sharp we were at the prearranged crossroad near the village N——. I stopped the car by the road, pretending to tinker with the engine, and looked desperately for Captain R——.

The road was empty. We were all under a terrific nervous strain. The tension increased with every moment.

I saw a car down the road, a thin trail of dust rising behind it in the quiet morning air. But it was a truck, and it passed without stopping.

Then, on the blue horizon, I saw a small black speck. The time was 10:20, and still no sign of Captain R——. The black speck in the sky grew bigger until I recognized the grey cargo-version of a Czech Airlines *Dakota*. When it flew overhead and I read the markings, "OK-WAA," on the wings, my nerves seemed ready to snap.

At that time I had no idea that Captain R——, uncertain about the whole plan because of the completely cloudless sky, had gone to the airport to see if Captain K—— was proceeding with the plan. On previous D-Days a cloud cover had been one of the conditions of executing our escape.

Captain R—— reported for duty at the operations room and waited for the flight to Brussels. Ten minutes before take-off time he saw Captain K—— applying at the office for permission to make a test flight.

Captain R—— knew then that the flight was still going according to plan. He rushed to the nearest telephone and rang operations, saying he had a terrific pain in his stomach and that he was going to see the airport medical officer at once.

"I'm about to collapse," he groaned. That statement was literally true. "Can you postpone the flight an hour or so? I'll probably be feeling better then." And with a groan he pretended to drop the telephone without waiting for an answer.

He hurried to his car, jumped in, and started to leave the airport. As he drove out, he heard the loudspeaker blaring his name. "Captain R——, Captain R——. Report to operations immediately."

He drove rapidly to collect his family, who were waiting outside Prague, and Captain K——'s family who were waiting at a spot in the opposite direction.

At 10:25 he screeched to a stop at the crossroads where we waited.

Overhead circled the aircraft. Here was Captain R——. No more waiting.

I shouted out the window of my car, "Go to the next village. There's a tobacco shop on the right hand side. Take the first road to the left. I'll meet you behind the village."

Without answering, he was off. I followed him for a few seconds, then took a short cut down another road. We met about a mile behind the village.

I pointed to a nearby clover field. "That's it! Drive to the bottom and wait for the signal!"

I stopped the car at the rear of the field. Apparently Captain K—— had seen us from the air. He banked steeply and signalled by dipping the wings that there were no policemen aboard. We signalled back with a white pillowcase, put on top of the car, that everything was coming along fine with us.

At that moment the plane lowered its wheels and started to land. Just then a man on a motorcycle appeared on the road. His grey-green suit looked like a policeman's uniform. We froze, hypnotized by the approaching machine. Then we saw that he was a civilian. He must have observed what was happening. Two cars were waiting by the field. A plane was almost touching down.

But probably the civilian was as frightened as we were. He drove past us fast as he could, looking straight ahead.

Meanwhile, Captain K—— was making a low approach and the aircraft was virtually suspended on its props. With full flaps she touched the ground with the tail wheel first.

K—— applied the brakes and the plane came to a standstill in the middle of the field. There was no wind. It was the most fantastic landing I have ever seen. He taxied to the corner of the field and we drove to meet him.

Captain K—— had encountered difficulties which persons in a free country cannot understand, but he had succeeded in getting the plane for a test without the usual police escort and without the crew.

Back at the airport he had told the control tower that he had just received a telephone message from the airport's police section, ordering him to take-off. Captain K—— then turned in a written form, which he signed, containing the names of an imaginary crew. He listed only the most reliable Communists as crew members.

Just as the expected Soviet delegate landed and was greeted by government and airport officials, Captain K—— got into the plane and started the engines. The airport was jammed with police guards and secret agents. The captain told the ground crew that he would warm up the engines while waiting for the crew.

"I don't need you any longer. You can go see the parade," he told them.

As soon as they disappeared he asked the tower for permission for take-off. And he got it.

A few minutes later he was airborne without the crew. In his tanks were 500 gallons of gas. At the airport there wasn't the slightest suspicion.

And now he was standing at the cargo door on the little clover field, helping us climb aboard the plane.

"Hurry up!" he shouted. He was coatless. His shirt was completely wet from perspiration. Beads of sweat stood out on his forehead.

First went the children, then the wives and personal luggage. At last Captain R—— and I climbed aboard.

The entire loading process took about 90 seconds. I believe it was the quickest aircraft loading job ever accomplished. When we were all inside Captain K—— ran forward to the controls. Captain R—— was holding the doors where a rubber strip had slipped between the frame and door so it could not be locked. I ran to the cockpit to help K—— at the take-off.

At that moment K—— opened the throttles. I dumped half-flaps to make

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the take-off run shorter. We were airborne after about 300 yards.

I took the controls and turned the airplane to 330°, straight to the Russian Zone of Germany, flying at treetop level to minimize the danger of being spotted by fighters.

As a safety precaution against just such an escape as this there was a standing order that every Czech Airlines test pilot had to report his position to the control tower every 10 minutes. After our take-off, K—— called the tower and gave his position report on VHF as 15 miles east of Prague.

"Roger," said the controller. In another 10 minutes he called the tower again, giving his position as 15 miles south of Prague. Twenty minutes after take-off we were crossing the Czech border, calling the tower for the last time.

"Hello, Prague tower. My position is overhead P.A. beacon. Will you please switch the S.B.A. on? I want to test it."

The tower answered: "Okay. S.B.A. is on. You are number one to land. Over."

Captain K—— grinned. "Roger," he said.

We had about 10 minutes to cross the Russian Zone of Germany.

Then came the American zone. We were safe.

Over Frankfurt some American fighters had a look at us and flew escort for about five minutes. From Frankfurt we flew to Brussels and then set course for England. Over the Channel I sent a message to Manston Airport where we wanted to land.

"Hello Manston tower. This is OK-WAA calling. How do you read? This is an escape flight from Czechoslovakia. Repeat. This is an escape flight from Czechoslovakia. Give me instructions for landing."

The years of terror were now behind us. We had flown from slavery to freedom. END

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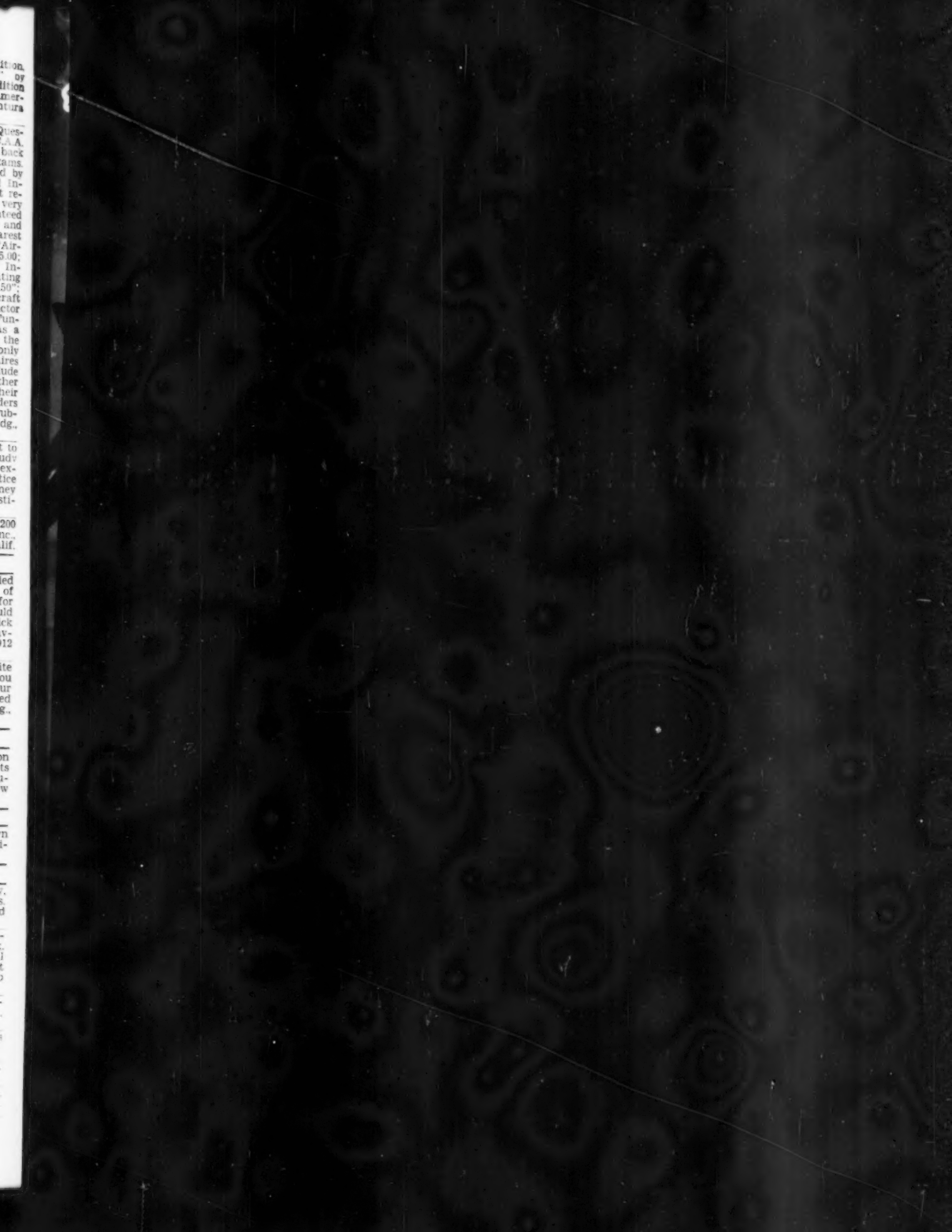
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